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ABSTRACT

An advanced General Education Program has been designed to prepare an individual with the information, concepts, and general knowledge required to successfully pass the American Council on Education's High School General Education Development (GED) Test. The Advanced General Education Program provides comprehensive self-instruction in each of the following areas: (1) Correctness and effectiveness of Expression, (2) Social Studies, (3) Natural Sciences, (4) Interpretation of Literary Materials, and (5) General Mathematics. This document is a compilation of Unit Tests. (CK)

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ADVANCED
GENERAL EDUCATION PROGRAM

A HIGH SCHOOL SELF-STUDY PROGRAM

UNIT TESTS

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U.S. DEPARTMENT OF LABOR
MANPOWER ADMINISTRATION, JOB CORPS
NOVEMBER 1969

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LEVEL I

UNIT 1

UNIT TEST

Time started ____________

4

The exercises that follow will give you practice in reading. When you come across a word you don't know, use the skills you have just learned. Try to figure out the meaning of a new word by looking at the context, or by seeing if you know part of the new word.

READ the selections very carefully. Then go on to the questions. Be sure you understand the question. When you think you know the answer, CIRCLE the letter in front of the answer.

Sometimes a question refers to a particular word in the paragraph. Then you should go back and find the word. The line that has the word will have a letter beside it to make it easy for you to find.

Here is a sample. First there is a short paragraph to read. Then there is a question about a word. You are told to look for the word in line a.

In his opening letter, the Mayor of New York says that the flags
a. in front of the United Nations Building are a sign of the diversity
of the city. There is a flag for every country that belongs to the
b. United Nations. The Mayor thought the flags also represented the
city because people from nations all over the world live in New
York.

1. Diverse is the opposite of same. Diversity (in line a) comes closest in meaning to

    a. arguments

    b. crowds

    c. differences

    d. similarity

Find line a. The word diversity is underlined. Now read the question again. When you've decided on the answer, circle the letter beside it. Did you pick the right answer? It is:

[✓ c.] differences

a. The slang phrase "making it" means "to establish yourself." You can make it as a banker, as a mechanic, with a girl. The word comes from the common English phrase "make it against difficulties." An example of "making it" can be seen in this sentence: "They kept shooting at him but he made it across the field."

A very common use of the phrase "make it" are the encouraging and self-encouraging exclamations, "You've got it made!" or "I'll have it made!" This usually refers to some future hope. When you hear this, "He had it made," you know that the person saying it thinks that things were very easy or successful for someone else.

1. What kind of language do you think slang (in line a) is?

   a. difficult

   b. foreign

   c. formal

   d. informal

2. If a boy said, "That home run did it. Our team has it made." He thinks his team:

   a. is likely to win

   b. knew it would win

   c. will play harder

   d. won the game

3. Another way of explaining the phrase "making it" is to say that it means success. Which of these would fit that definition?

   a. I made her leave.

   b. I made it as a mechanic.

   c. I made my own meals.

   d. I made the hot rod.

Vocabulary skills work in poems too. READ the following:

The Microbe is so very small.
You cannot make him out at all,
a. But many sanguine people hope
b. To see him through a microscope.
They hope to see his tongue beneath
A hundred curious rows of teeth;
His seven tufted tails with lots
Of lovely pink and purple spots,
His eyebrows of a tender green;
All these have never yet been seen -
But Scientists, who ought to know,
c. Assure us that they must be so . . .
Oh! let us never, never doubt
What nobody is sure about!

4. A microbe is a very small organism, a bacteria or germ. When the author of this poem states that many sanguine people hope to see him through a microscope, you can assume that sanguine (in line a) comes closest in meaning to:

    a. handsome

    b. hopeful

    c. sad

    d. silly

5. A microscope (in line b) is used to:

    a. enlarge tiny objects so that they can be seen

    b. kill living germs

    c. make large objects smaller so that they can be seen

    d. see objects that are far away

6. This poem was probably written to:

   a. criticize scientists

   b. entertain (amuse) the reader

   c. start an argument

   d. teach biology

7. When the author says that scientists "assure us that they must be so. . ." (line c) he means that microbes:

   a. are imagined by scientists

   b. can be seen by someone with good vision

   c. exist but can't be seen without a microscope

   d. probably do not exist

The following comes from a play written about 300 years ago. Two soldiers are talking about their friend Ralph, who is in jail and sentenced to death. Their English is somewhat different from ours. At first, it may appear confusing to you. However, if you read slowly and carefully, you will be able to understand it. The first soldier is talking about Ralph to the second soldier.

1st Soldier:
Ralph, a soldier firm and sound of heart
And of boundless valor, has by cruel fate,
a. And dizzy Fortune's* furious heedless wheel
Been caught.
b. O Fortune is a goddess blind
That stands upon a rolling restless stone
Which rolls and rolls and rolls.

2nd Soldier:
You are so right. Fortune is painted blind.
c. She has a scarf over her eyes, to signify
To you that she is blind. Fortune is also
Painted with a wheel, to show that she is
Always turning and changing.

1st Soldier:
Fortune is Ralph's foe, and frowns on him.
For he has but taken off a day
And must be hanged.
A damned death!
Let hanging be for dogs, let man go free.

8. What does the first soldier feel is to blame for Ralph's death?

    a. the army system

    b. Fortune

    c. Ralph's bravery

    d. the wheel of a carriage

---

*Fortune means fate, luck, or chance.

9. The second soldier thinks of Fortune as a painted picture. Which of these would be in the painting?

   a. Fortune would be carrying a basket.

   b. Her eyes would be covered with a scarf.

   c. She would be holding a baby.

   d. She would be praying.

10. Heed means to care, to pay attention to. Thus, Fortune's wheel (in line a) is:

    a. careful

    b. careless

    c. fast

    d. thoughtful

11. Signify (in line c) has a simple root. From this root can you guess that signify means to

    a. choose blindness

    b. lead the way

    c. mark by writing

    d. show by a sign

a. Watching things in nature gives me pleasure, but few phenomena give me more delight than the forms of frozen sand as it melts. I like to watch the sand flow down the sides of a steep hill on the edge of a lake. It is fine and rich in colors. When the frost melts in the spring, the sand begins to move down the slopes like lava.
b. Sometimes it bursts out through the snow and overflows it. Countless
c. little streams overlap and interlace with one another. As the stream flows it takes the form of sappy leaves or vines. I am reminded of leopards' paws or birds' feet, of brains or lungs or broken flowers.
d. It is a truly bizzare vegetation.

12. The particular phenomenon (in line a) described by the writer was the movement of melting sand. Phenomenon means:

    a. anything seen or watched

    b. streams of sand

    c. warm weather

    d. winter

13. What word is closest to the meaning of bizarre (in line d) in this passage?

    a. happy

    b. large

    c. straight

    d. strange

14. The writer tells you that the streams "overlap and interlace" (in line c). What single word could be used to give you the same picture?

    a. combine

    b. disappear

    c. evaporate

    d. separate

15. Countless has the root count. Countless (in line b) probably means:

a. a few

b. more than two

c. a very great many

d. none

Time completed_________________

LEVEL I

UNIT 2

UNIT TEST

Time started ____________________

You have learned how to locate a particular word or phrase in the paragraph you read. Now you are going to get some practice in finding in a paragraph the sentence or sentences that gives you the information needed to answer the question.

Here is a sample exercise to show you how to find the answer in the paragraph. Follow the steps in the order given:

Step 1: READ these paragraphs:

1 A survey was taken to find out how much the average reader
understands about what he reads in a newspaper. The survey
3 also tried to discover what people remember about news that
is broadcast over radio and television. According to the
5 results of the survey, people understand a lot less than the
radio announcer or the newspaper editor believe.

7 It was found that the readers often miss the meaning of a word
or phrase that the writer assumes they know. Words that were
9 familiar to the older generation (usually the writer's or
announcer's generation) are unknown to a new generation
11 because their experience is different. For example, the
word "Dunkirk" was well known during World War II. It
13 referred to a famous battle and meant "retreat" to the adults
living during the second World War. By 1965, however, there
15 was a new generation. Young readers did not associate the
word with the battle. They thought it was a town in New England.

Step 2: Now, READ the question and the possible answers:

1. What was the purpose of the survey?

   a. to find out how many people read the newspapers and listen to the radio

   b. to find out how much people understand and remember about what they read (and hear over TV and radio)

Step 3: GO BACK to the paragraph and FIND THE LINES that help you to answer the question. (You should have read lines 1 through 4).

Step 4: CHOOSE the right answer. CIRCLE the letter of the correct answer. (the answer to the question is b.)

2. READ this question:

What is the main reason for this generation's failure to understand certain words?

a. some words are too hard for our generation

b. some words have a special meaning to one generation

c. the younger generation is not as smart

FIND THE LINES that give you the answer before you choose your answer. The lines that you need to answer question 2 are lines _____ to _____.

(The answer to question 2 is b. The lines you need are lines 7 to 15.)

3. READ this question:

The results of the survey may surprise some announcers and editors. Why?

a. Announcers and editors think people understand more than they really do.

b. Announcers and editors write in a simple way because they believe that people know very little.

FIND THE LINES that give you the answer before you choose your answer. The lines that you need to answer question 3 are lines _____ to _____.

(The answer to question 3 is a. The lines you need are lines 4 to 6.)

Now turn the page and go on to the exercises. Be sure to look for the lines that give you the information you need to answer the questions.

1 While the practice of slavery in Saudi Arabia is dying, it is by no means dead.
Slavery was officially abolished by Crown Prince Faisal in 1962. At that
3 time, the number of slaves was about 100,000. The 1962 Saudi decree offered
to pay owners for slaves, in order to insure that the slaves would be freed.
5 However, the largest slave owners, princes of the royal family, considered
it below their dignity to accept payment.

7 Slavery in the Arab world is a kindly institution*. Slaves are rarely used for
industrial or agricultural labor. They are often treated as members of the
9 family. The word "slave" is not a contemptuous term in the Arabic language.
People call their servants "slaves" even though they are, in fact, free.
11 In the Arab countries poor people still try to place their children with wealthy
(rich) townsmen in return for a small payment. They do not think of it as
13 "selling their children into slavery," but rather as a way to give them a better
chance in life.

1. You can infer from the passage that contemptuous (line 9) means:

   a. friendly

   b. informal

   c. personal

   d. scornful

2. The passage implies that poor people in Arabia do not have the opportunity to find a better life that is also free. What lines support this implication?

   a. lines 1 - 6

   b. lines 7 - 9

   c. lines 9 - 10

   d. lines 11 - 14

*Institution in this context means a system that is practiced by many and has been practiced over a long period of time.

3. What is the best interpretation of the phrase "kindly institution"?

   a. The poor people of Arabia can sell their children and hope they will have an opportunity for freedom.

   b. The princes of the royal family, who refused to take money when they freed the slaves, now keep slaves as employees.

   c. The servants (still called slaves) are not treated in a nasty way, do not have to perform hard labor, and are considered part of the family.

   d. Slavery does not serve any useful purpose in Arabia, but doesn't do any harm.

4. Saudi Arabia has many desert regions. The rainfall is probably:

   a. adequate

   b. average

   c. very heavy

   d. very light

People are not only physical or biological beings. They are members of a society as well. As social beings, they are heavily influenced by the cultures of the society in which they are born and grow up. In certain Indian tribes, for example, it is the custom for young girls to choose their husbands. In our society, it is the custom for the man to ask the woman to marry him. This seems more natural to us, as we believe that man has the more aggressive instincts and should display initiative.

Another example of the influence of society is how a woman treats her children in different cultures. In our society, custom demands that the mother protect her children from hunger and danger. Indeed, this hardly seems a custom to us, but a natural instinct -- the maternal instinct to care for her young. But this custom was at one time very different in the Eskimo society. Eskimo women used to expose some of their young freeze to death. While this seems terrible to us, it is understandable in terms of the Eskimo's natural environment. After all, in the Northern Polar Zone food is scarce because there is no growing season. In order to survive, the Eskimo family cannot have too many mouths to feed. If too many children are born in one family, several may die for lack of food. It is felt that exposing them at birth is more merciful.

5. A student of what subject would be likely to study material in the above passage?

   a. anthropology

   b. economics

   c. history

   d. politics

6. The above passage implies that:

   a. climate does not affect the customs of a society

   b. culture can influence and change natural instincts

   c. culture plays a minor role in the way individuals follow the natural desires

   d. the Eskimo's natural environment is in the Southern Hemisphere

7. The Indian practice of a girl choosing her husband is an example of:

   a. a belief

   b. a biological desire

   c. a custom

   d. an instinct

8. What lines tell you the answer to question 7?

   a. lines 1 and 2

   b. lines 3 - 4

   c. lines 5 - 7

   d. lines 8 - 9

9. To initiate means to start something. Initial means first. Your initials are the first letters of your first and last name. What does initiative (line 7) mean?

   a. drive, willingness to take the first step

   b. the first time a person is recognized

   c. the first time marriage is proposed

   d. a way of always being first

10. You can infer from the context that expose (line 13) means:

   a. to change

   b. to express hate

   c. to give away

   d. to leave unprotected

At a lecture today, a Yale University demographer* argued that no one, regardless of wealth, has the right to have more than two children. Dr. Day said, "No longer can we defend excessive reproduction by saying 'Well, we can afford it.' The question now is whether society can afford it."

The increase in population does not have the immediately serious consequences in the United States that it has in Asia. But Dr. Day said that it does affect drastically the kind of life one can lead -- one's diet, housing, work and play. He stated that the population increase in this country has forced greater limits on individual behavior. It has resulted in crowded schools and recreation areas, vanishing countryside, air and water pollution, endless traffic jams. A doctor in the audience said that the number of children a couple want to have is their own business, and the point of birth control is just to insure that freedom of choice. Dr. Day disagreed by saying, "Reproduction is a private act but it is not a private affair. It has far-reaching social consequences. In order for the population to become stable, people must begin to want fewer children."

11. The demographer feels that no person should have more than two children because:

    a. too many people will increase the average standard of living

    b. the United States cannot feed any more people

    c. the United States will have to use its resources for poorer countries

    d. a very high population will result in serious social problems

12. The Yale University demographer implies that unless families are limited to two children:

    a. the custom of raising children will soon cease to be meaningful

    b. individuals will not be able to afford children

    c. our way of life will be drastically affected

    d. people should have children only if they can afford them

---

*A demographer is a man who studies facts about population or numbers of people.

13. What lines gave you the answer to question 12?

a. lines 1 - 5

b. lines 6 - 9

c. lines 13 - 15

d. lines 15 - 17

14. You can infer from the passage that:

a. Asia has a population problem

b. conditions in the United States are favorable for continual population growth

c. living conditions are much better where there are more people

d. water pollution is not related to growth of peoples

15. What is the meaning of consequences (line 7)?

a. being conscious that something will happen

b. results--what will happen as a result of something

c. stability of the rate of population growth

d. the way culture is affected

Time completed ______________

LEVEL I

UNIT 3

UNIT TEST

Time started _______________

One of the most important ways to sharpen your reading is to READ CAREFULLY. This is especially true when you read questions. It is important to know what is being asked before you try to find the answer. In these exercises there is a new kind of question. The question will ask you to pick out a wrong answer from a group of choices. Of course, these questions are difficult because in order to know what's wrong, you have to know what's right.

You can spot this kind of question because there is always a clue in the way it is asked. The clue may be the word not or the word except.

READ this example. Then, READ the question carefully and look for the clue. When you are sure you know the answer, CIRCLE the right letter.

> Mr. Lewis has been an official of the trucking union since it was founded. He has been president since 1960. The grandson of a slave, he was born in a two-room frame house in North Carolina. At various times in his career, he was a hospital attendant, a school principal and a truckdriver.
>
> Mr. Lewis has led a busy life and knows many different things. Judging from the above paragraph which of the following things would he probably not know anything about?
>
> a. hospitals
> b. manufacturing
> c. schools
> d. traffic

The answer is b. manufacturing. All the other answers are wrong because the paragraph tells you that he did know something about those jobs.

The same question could have been written in a different way. READ this version of the question:

Mr. Lewis has led a busy life and has learned about many different things. Judging from the above paragraph he knows about each of the following except:

a. hospitals
b. manufacturing
c. schools
d. traffic

In the group of questions that follows there will be some questions that ask you to find the wrong answers (the clues will be not or except). But not all the questions will be like that. READ the question first to make sure you know what is being asked.

I recently returned from a visit to an Eskimo settlement in the Arctic. I was surprised and disappointed to find that the people there no longer live the type of life that has always been associated with Eskimos. I had expected to find them living in their traditional ice-houses, igloos. Instead, I found them living in small but comfortable oil-heated prefabricated homes. Most of the Eskimos were clad in garments manufactured in the United States, rather than in clothes hand-made from animal skins. Gone forever are the days when old people and infants often had to be left on the ice to die. But also gone is the clever custom of making eye shades of walrus ivory or wood to protect them from the blinding snow.

Today, the Eskimos are more prosperous than they ever have been in their long history. Many of them own modern conveniences like sewing machines and movie cameras. It is unfortunate that these people are adopting our modern way of life. They are gradually losing many of the elements of their own distinctive culture, and becoming more and more like typical Westerners. There are, of course, some facts of their culture that are still maintained. For example, they still speak their own unique language, and still earn much of their living by selling their handiworks, such as wood and stone carvings. But little by little, the cultural aspects of Eskimo life that made the Eskimos unique are disappearing. There is a real danger that they will completely assimilate* Western culture.

1. What is the opinion expressed in this paragraph?

   a. The Eskimos have entirely destroyed their former way of life.

   b. The Eskimos will never understand the Western way of life.

   c. It is unfortunate that the Eskimos have lost so much of the culture that made them unique.

   d. There is a danger that the Eskimos will become hostile (warlike) toward Western peoples.

---

*Assimilate in this context means to take over the customs of Western culture.

2. Which of the following facts do not support the author's opinion?

   a. Eskimos live in prefabricated houses instead of igloos.

   b. Gone is the clever custom of making eye shades of walrus ivory to protect the eyes from blinding snow.

   c. Most of the Eskimos are clad in garments manufactured in the United States, rather than in clothes hand-made from animal skins.

   d. Today, the Eskimos still speak their own unique language.

3. Western culture (line 27) does not refer to the American "western" culture of cowboys and indians. To what does it most likely refer?

   a. American culture in general
   b. the culture of Asia, and India
   c. the culture of the Western Hemisphere
   d. the culture of western Alaska

4. What lines in the passage describe customs that the Eskimos still practice, even though they have changed in so many ways?

   a. 1 - 3
   b. 9 - 13
   c. 15 - 17
   d. 23 - 25

5. The implication of the paragraph is that the Eskimo culture is becoming more:

   a. busy
   b. civilized
   c. natural
   d. primitive

A vivid picture of the plight of 14 million American women living in poverty was presented at a forum in New York. A report called "Women on the Move" provided material for the forum. The report was based on research conducted in 48 cities of the United States. The chairman of the forum stated that women living in poverty needed economic safeguards as well as other social services. The hardest hit were Negro women. Surveys indicated that 56% of all employed Negro women were found in the worst paid, least protected service occupations. Many of these same women were forced to be the main support of their families because of the hiring discrimination practiced against their husbands.

The poor are also discriminated against as consumers. Stores in poor neighborhoods very often sell inferior products at higher prices (an average of 10% higher than in middle class neighborhoods). Furthermore, the report said, few poor families can get credit at banks and department stores. As a result, many are forced to turn to loan "sharks ," who may charge up to 42% interest on the unpaid balance of a loan. New efforts to assist women in poverty have been started as a result of the Women on the Move report. They include credit unions, consumer education programs, and campaigns to improve minimum wage laws.

6. Which of these facts does not support the opinion that women living under conditions of poverty need economic safeguards?

    a. Food in poor neighborhoods is often 10% higher than elsewhere.

    b. Negro men are discriminated against when applying for jobs.

    c. Poor families can benefit from credit unions.

    d. Poor people tend to have unprotected jobs.

7. The recommendations for action (consumer education programs, credit unions, wage law campaigns) were based upon

    a. community interest
    b. facts brought out by research findings
    c. feeling or emotion
    d. opinions not supported by facts

8. Each of the following facts except one is relevant to the opinion that poor women need social services. CIRCLE the letter of the exception:

a. Loan sharks lend money at high rates of interest.
b. Poor women often have to support large families.
c. Stores in poor neighborhoods have higher prices.
d. Women in this country are strong and courageous.

9. The facts cited in the report described above imply that:

a. the business community protects poor women
b. poor women can take care of themselves
c. poor women have a wide choice of jobs
d. poor women need guidance and help from the community

Most of what has been written in this country about the causes of the American Revolution has, naturally, been sympathetic to the American point of view. However, it shouldn't be overlooked that England faced many problems at that time. She was trying desperately to keep together a huge, scattered Empire. This could be done only if strong laws were made to create unity and stability among her possessions.

This problem of keeping an empire together was particularly complicated in the American colonies* by the necessity of protecting the colonists against the Indians. The war with the Indians cost England enormous amounts of money. In fact, the British national debt had doubled during the war, and taxes in England had risen 20%. England saw no reason why the colonies, which were growing rapidly in population and wealth, should not help to pay for the cost of a war that had been fought for their protection.

To raise the money needed to pay off this national debt, the British Parliament (a body like our Congress) taxed the colonists. The colonists became enraged at this action, since they claimed they were subjected to "taxation without representation."

10. What is the meaning of stability (line 7) in the context of this paragraph?

    a. anarchy

    b. not being satisfied with the government

    c. tyranny

    d. willingness to live according to the rules of England without changing them

11. What is the opinion of the author who wrote this passage?

    a. England's actions preceding the War for Independence are understandable if one knows her side of the story.

    b. The Indians were justified in attacking the settlers, since the Indians occupied the land first.

    c. Taxes would not be necessary if peace could be maintained.

    d. Wars are wrong because they cost so much money.

---

*A colony is a group of people living under the government of a country that is in another part of the world.

12. Which of these facts could be used to support the opinion of the author?

   a. The American settlers were given a great deal of protection by the British armed forces.

   b. Great Britain would not allow the colonists to spread out into the western part of the country, but forced them to stay east of the Allegheny mountains.

   c. In March of 1770, British soldiers on guard in Boston fired at a group of citizens, killing four of them, because some of the crowd had shot snowballs at the guards.

   d. Many of the Indians in North America established friendly relations with the settlers.

13. What is the issue of the passage?

   a. the Indian threat to the early American settlers

   b. the necessity of war

   c. the role England played in causing the War for Independence

   d. the size of the British Empire

14. Which type of government would not use "taxation without representation?

   a. democracy
   b. dictatorship
   c. totalitarian state
   d. tyranny

Time completed ______________

LEVEL I

UNIT 4

UNIT TEST

Time started ________________

These exercises review what you have learned about reading and interpreting opinions. The paragraphs relate to political and economic issues.

Before you read the following passage, be sure you understand the meaning of this word:

migrant

A migrant farm worker goes from farm to farm to find work. Migrating means moving from one place to another. A migrating herd of animals would be a herd that went from place to place in search of food, without having one central gathering place.

Speaker A: "The first of more than 17,000 migrant laborers from the South have begun to trickle into 65,000 New York State farms. They are going to work on this year's crop of grapes, apples, beans, onions, potatoes and other produce. They are unskilled workers. They work with their hands -- clearing bushes, vines, picking vegetables and fruit. We pay the workers the minimum wage of \$1 an hour. If we paid them any more, we would start to lose money because we wouldn't be making any profit on the produce. The majority of migrant workers have no desire to get by on more than the minimum anyway. They work to get enough to eat and drink and that's it. We've tried to improve the conditions at the migrant labor camps but it's no use. The workers just don't care about anything; they ruin everything."

Speaker B: "The farmers take advantage of the migrant workers. The farmers have a strong political voice. They have money and votes. The migrant laborer is not organized; he doesn't vote; he has no money and no way to defend his rights. The migrant does not live in one place. He is usually in the rural (farm) areas where the rest of America doesn't see him. Conditions at migrant labor camps, where the workers live, are bad. These camps were poor to begin with and have not been improved over the last thirty years. The workers live in shanties and tar-paper shacks that often have no running water or heat. The farmers should take more responsibility toward the field workers they employ. Efforts are being made this year to organize the laborers into a union. We want to have laws passed that will improve the wages of the migrant farmer."

1. From an economic point of view, the life of the migrant workers most resembles the life of:

   a. ☐ hunters

   b. ☐ traders

   c. ☐ village farmers

   d. ☐ wandering tribes

2. What is the bias of the migrant labor representative?

   a. ☐ He thinks that farmers take advantage of migrant workers.

   b. ☐ He thinks that migrant workers have political power.

   c. ☐ He thinks that the farmers try to protect the migrant worker.

3. What does the migrant worker give to the farmer?

   a. ☐ capital

   b. ☐ consumer market

   c. ☐ raw material

   d. ☐ services (labor)

4. Each of the representatives has a bias. Which speaker is biased in favor of the farmer's rights?

   a. ☐ Speaker A

   b. ☐ Speaker B

5. Which speaker would advocate telling the migrants themselves to be responsible for improving their living conditions?

   a. ☐ Speaker A

   b. ☐ Speaker B

In wandering prehistoric tribes of hunters and fishermen, each man had to fight for survival against nature. There was no cooperation and no government. Labor was not divided, because there were very few tasks. Work consisted of finding food and shelter. Because each hunter had to know how to do everything for himself, he was very independent.

When man learned how to farm he was able to settle in villages. He discovered how to make fires, cook food, build houses. There were many jobs to perform in the villages and these jobs were divided among the villagers. Because of the division of labor, the villager was more dependent on his fellow man than the tribesman had been.

Villages became more and more crowded. They grew into towns and cities. With the improvement of roads and wagons, more towns and cities developed. The larger the towns became the more need there was for division of labor. One man could not even dream of performing all the functions necessary for survival. He became more and more dependent on other people.

Growing raw material was often separated from making products. Raw materials were grown in the country and shipped to the towns for workers to change them into products. Producers and consumers no longer lived in the same village. The marketplace became the center for exchange. As trade expanded, simple barter was no longer possible. Money was needed as a means of exchange.

6. From the above paragraph, you can infer that division of labor would not occur in a:

a. ☐ farming village

b. ☐ growing town

c. ☐ populated city

d. ☐ wandering tribe

7. In a primitive community of food-gathering hunters and fishermen, the government was probably:

   a. ☐ an anarchy

   b. ☐ a democracy

   c. ☐ a totalitarian state

8. Which of the following did not occur as a result of men forming villages, towns and cities?

   a. ☐ better roads and means of transportation

   b. ☐ exchange of goods with towns

   c. ☐ greater independence of each individual man

   d. ☐ increased need for money as a form of exchange

9. A consumer is someone who:

   a. ☐ buys a product

   b. ☐ makes a product

   c. ☐ sells a product

   d. ☐ transports a product

10. What is the meaning of expanded (line 28)?

   a. ☐ became less important

   b. ☐ exported goods and services

   c. ☐ imported goods and services

   d. ☐ increased in size, number and complexity

Speaker A: "It is impossible to feel a close, personal connection to the federal government when all your dealings with it are on paper -- taxes, signs telling you what the laws are, forms to fill out. I envy the guy who lived in a simple tribe. He knew his leaders. He could go to them and they would give him advice about his problems. The leaders themselves would explain the laws and customs of his society to him. Why, a guy could walk right up to a tribe leader and speak his mind. Besides that, the laws were simpler -- they were in the same language that people spoke every day. Now it's all so complicated. Who knows what 'necessitating litigation' means?"

Speaker B: "You don't understand what modern life is all about. Sure modern man's life is more complicated than the simple tribesman's, but that's because we understand so much more about the world. We can learn about our government by reading. All the tribesman knew how to do was talk, so he had to have things explained to him. We get just as much from our government as the tribesman did from his, only we get it indirectly. And we get more from our government than any tribesman. The government sends us to school, and makes it possible for us to get medical aid. It gives us social security. We may not be able to talk privately to the President of the United States but we can write our congressman or representative. And if you're interested, you can talk to your local political leader. Why, when you talk to your child's schoolteacher, you're talking to a representative of your town government."

11. Speaker A assumes that in order for contact to be meaningful to a person it has to be:

    a. ☐ complex

    b. ☐ secret

    c. ☐ spoken

    d. ☐ written

12. What is Speaker B's opinion of Speaker A's statements?

a. ☐ He advocates the direct contact Speaker A wants.

b. ☐ He thinks A looks at things too simply.

c. ☐ He understands and sympathizes with him.

13. What is the point of view (attitude) of Speaker B toward modern government?

a. ☐ Even though it's direct, it's impersonal.

b. ☐ It makes people think.

c. ☐ It makes sense in the context of the modern world.

d. ☐ There aren't any tribes left today, so direct contact isn't necessary.

14. Which speaker would agree with the statement that our contact with our government can be direct and personal if we want to make it that way?

a. ☐ Speaker A

b. ☐ Speaker B

Time Completed____________________________

PM 431
14-16

LEVEL I

UNIT 5

UNIT TEST

Time started ______________

In a previous exercise you were told to read the question carefully in order to be sure what was being asked. Often a question will ask you what is not an example. Or, a question might say that every choice below is correct except one. You should pick the one that isn't correct. In this exercise there will be more questions that are like this. Watch for them and be sure you know what is being asked.

The methods of communication available to a society have an important effect on the ways laws are made, passed on and obeyed. A tribal chieftain, in council with his principal advisers around the campfire, communicates laws indirectly. He and his council are dependent on spoken language and the memory only. Thus, the ways of storing and transmitting information in a tribe are limited.

Writing and especially printing changed all this. Laws were no longer only communicated by spoken word but through newspapers, written announcements, and reports. Written laws may reach audiences at any time or place, even hundreds of years after they are first made. For example, the laws in the U.S. Constitution were written in 1787, but they still form the basis of our government today. The opinions of brilliant men long since dead still influence men's thinking. Think of the ways laws regulating trade are made today and compare it to the ways laws were made in an early tribal society to get a better idea of the way communications influence law-making.

Before modern man can make a trade law, he analyzes what was wrong with the old laws or why a law is needed. He studies the trade problems and laws of other places. He takes into account all the possible applications of the law. It will take many months for the law to be written and approved. People will read the law before they use it or see it in action. People who had no part in making the law will have to obey it. In a tribal society, all the people sat down together and decided that there had to be a uniform way of trading. Someone proposed a way to regulate the trade; it was discussed, explained and approved. The new law immediately went into effect.

1. What is not being compared in the above passage?

   a. ☐ influence of the living and influence of the dead

   b. ☐ simple and complex societies

   c. ☐ trading and producing

   d. ☐ written and oral communication

2. Making a trade law in a modern society is:

- a. ☐ less complicated than in a tribal society
- b. ☐ more complicated than in a tribal society
- c. ☐ the same as in a tribal society

3. Law-making in governments today is very complicated, for many reasons. Which is not a reason?

- a. ☐ The executive branch of the government can veto laws.
- b. ☐ The judicial branch of the government can call a law unconstitutional.
- c. ☐ Legislators must analyze problems and do research on how legal problems have been solved in the past.
- d. ☐ Technology has made communication of laws a simple matter in modern society.

4. Which of the following things would you learn from a non-technological method of communication?

- a. ☐ batting averages
- b. ☐ how to fill out your income tax form
- c. ☐ how to hunt
- d. ☐ what time it is

In the prehistoric period, man depended entirely upon himself for the accomplishment of his tasks. All through the agricultural era, up to the Industrial Revolution, only animal power and simple tools were used to help man. The Industrial Revolution saw the substitution of machine power for animal power. More and more, machines were used to assist man and change his way of life. Now machines are part of almost everything we do. Just recently Bell System officials announced that television-telephones have been perfected and that they will be available for commercial use.

See-as-you-talk telephones might have a considerable effect on the nation's telephoning habits and way of doing business. Without moving from their desks, salesmen would be able to demonstrate their wares to buyers in another city. Far-away job applicants could be seen as well as heard. While there are many possible uses for TV-telephones, Bell telephone officials feel that it will be many years before such phones take their place in the average home. Complex economic and technological problems must be worked out first.

5. Which of the questions below reflects an economic reason for the length of time that must pass before we see the widespread use of TV-telephones?

   a. ☐ the cost of installing and maintaining the service

   b. ☐ perfecting the control of whether or not the other person sees you

   c. ☐ the video load on the telephone wires

   d. ☐ the wiring system needed to make the service available to the private home owner

6. Which of these was not necessary in order for the TV-telephone to be invented?

   a. ☐ assembly-line production

   b. ☐ public demand

   c. ☐ industrial use of electric power

   d. ☐ standardized goods

7. The adoption of TV-telephones would be most likely to affect:

- a. ☐ agricultural production methods
- b. ☐ business practices and customs
- c. ☐ eating customs
- d. ☐ legal procedures

8. Today, applying for a job by telephone is not usually generally approved of by **employers**. When TV-telephones come into common use, this might change because:

- a. ☐ Applying by TV-telephone will be much more like a personal interview than an ordinary phone call.
- b. ☐ Technology will change the nature of man's work; interviews will no longer be necessary.
- c. ☐ Watching the person who hires you on television will give you an idea of the nature of your work.
- d. ☐ When you ask for a job over the telephone in the future, you can make it clear what you have in mind.

The Industrial Revolution in Europe and America had a noticeable effect on habits of dress and styles of clothing. Strangely enough, as more goods became available and there was a greater circulation of money, clothing became less beautiful and elaborate. Before the Industrial Revolution, wealthy people had their clothing carefully made by hand by skilled craftsmen. When machines came to be used as a substitute for human labor, it became fashionable to wear machine-made clothing. This clothing was simpler in both style and fabric. One of the characteristics of mass production was that it made goods available to both poor and wealthy people. A new consumer group arose to wear the new clothing. It was no longer so easy to distinguish people's economic status by what they wore.

9. What is the meaning of status (line 13)?

a. ☐ a person's future

b. ☐ a person's height

c. ☐ a person's job

d. ☐ a person's position in society

10. The above passage suggests that the Industrial Revolution:

a. ☐ gave weavers more work

b. ☐ gave workers more purchasing power

c. ☐ improved styles

d. ☐ made people dress more elaborately

11. Which of the following techniques would not apply to clothing manufacture after the Industrial Revolution?

- a. ☐ assembly line
- b. ☐ barter of goods
- c. ☐ division of labor
- d. ☐ mass production

12. Which group of people did not profit as a result of the Industrial Revolution?

- a. ☐ craftsmen
- b. ☐ factory workers
- c. ☐ factory owners
- d. ☐ manufacturers

13. In the above passage machine-made clothing is being compared to:

- a. ☐ clothing made after the Industrial Revolution
- b. ☐ clothing of poor people
- c. ☐ handmade clothing
- d. ☐ prehistoric clothing

Time completed ______________

LEVEL I

UNIT 6

UNIT TEST

Time started ____________

Now you are going to get some practice in reading about chemistry the way you might find it in a magazine. You will read several paragraphs. They give you the information you need to answer the questions that follow.

Here is a sample exercise to show you how to find the answer in the paragraph. Follow the steps in the order given.

Step 1: READ this paragraph:

A. A survey was taken to find out how much the average reader understands about what he reads in a newspaper. The survey also tried to discover what people remember about news that is broadcast over radio and television. According to the results of the survey, people understand a lot less than the radio announcer or the newspaper editor believe.

Words that were familiar to the older generation (usually the writer's or announcer's generation) are unknown to a new generation because their experience is different. For example, the word "Dunkirk" was well known during World War II. It referred to a famous battle and meant "retreat" to the adults living during the second World War. By 1965, however, there was a new generation. Young readers did not associate the word with the battle. They thought it was a town in New England.

Step 2: Now, READ the question and the possible answers.

1. What was the purpose of the survey?

a. ☐ to find out how many people read the newspapers and listen to the radio

b. ☐ to find out how much people understand and remember about what they read (and hear over TV and radio)

Step 3: GO BACK to the paragraph and FIND THE LINES that help you to answer the question. (You should have read paragraph A, lines 1 through 5.)

Step 4: CHOOSE the right answer. (The answer to the question is b.)

NOW DO EXERCISE I

FOLLOW these steps:
1. READ the paragraph.
2. READ the question and possible answers.
3. GO BACK to the lines that contain the information you need to answer.
4. DECIDE what your answer is.
5. MARK your answer on the paper.

A. 1 As you have learned in the lessons you have just completed, matter
2 can be changed physically or chemically. A physical change is a
3 change in form or state without a change in the basic composition
4 of the molecules. The chopping of wood, which changes the form
5 of the wood; the breaking of glass, which changes the form of the
6 glass; and the freezing of water, which changes water from the
7 liquid state to the solid state, are all examples of physical changes.

B. 1 A chemical change is one in which a substance loses the properties
2 by which we recognize it and changes into one or more new sub-
3 stances. A chemical change is, therefore, a change in composition.
4 When iron rusts, for example, the rust is a new substance which is
5 produced by the combination of iron with oxygen from the air. When
6 fuel is burned or when food decays, a change in composition also
7 occurs.

C. 1 Chemical changes are always accompanied by the absorption or
2 liberation of energy; this does not always occur in physical changes.
3 For example, when a substance burns, heat is liberated. Light,
4 another form of energy, may also be a by-product of a chemical
5 change.

D. 1 Two common types of chemical change are synthesis and analysis.
2 Synthesis is the combining of two or more substances, usually ele-
3 ments, to form a single new substance. Analysis is the breaking up
4 of a substance into two or more new substances, usually elements.
5 SYNTHESIS: mercury + oxygen → mercuric oxide
6 ANALYSIS: water → hydrogen + oxygen

1. The change shown below represents (see paragraph D, lines 1 - 6):

sodium + chlorine → sodium cloride

a. ☐ analysis
b. ☐ a physical change
c. ☐ synthesis

2. The word "analysis" means (see paragraph D, lines 1 - 6):

a. ☐ to break into parts
b. ☐ to combine
c. ☐ to dissolve
d. ☐ to synthesize

3. The word "synthesis" means (see paragraph D, lines 1 - 6):

a. ☐ to absorb heat
b. ☐ to combine two or more things
c. ☐ to liberate (free) heat
d. ☐ to separate one thing into its component parts

4. A change in molecular composition does not occur in (see paragraph A, lines 1 - 4):

a. ☐ analysis
b. ☐ a chemical change
c. ☐ a physical change
d. ☐ synthesis

5. When a substance undergoes a chemical change, it (see paragraph C, lines 1 - 5):

a. ☐ always absorbs energy
b. ☐ always absorbs or liberates (frees) energy
c. ☐ always liberates (frees) energy
d. ☐ never absorbs or liberates (frees) energy

NOW DO EXERCISE II

A. 1 Most solids, when heated or cooled, act in the same manner that
2 liquids do. When solids are heated, the increase in molecular
3 motion causes expansion. When solids are cooled, the decrease
4 in molecular motion causes contraction. We allow for the expan-
5 sion and contraction of solids in the following ways:

B. 1 a. Roads, sidewalks, and railroad tracks are constructed
2 with spacings between sections to allow for expan-
3 sion during the hot weather.

C. 1 b. In planning the construction of bridges, engineers
2 take into account the expansion of the bridge in the
3 summer.

D. 1 c. Telephone and electric wires are strung loosely to
2 permit contraction during the winter.

E. 1 d. Glass tumblers are made with thin walls so that
2 both the outside and the inside of the tumbler can
3 expand at about the same rate. Thinner glassware
4 can generally hold hotter liquids than thicker glass-
5 ware.

1. The word "expansion" means (see paragraph A, lines 2 - 3):

   a. ☐ that nothing has happened to the shape of the substance

   b. ☐ that the molecules have moved farther apart so that the amount of space the substance occupies is increased

   c. ☐ that there are more molecules in the substance

   d. ☐ that there is a greater amount of the substance

2. The word "contraction" means (see paragraph A, lines 3 - 5):

   a. ☐ that nothing has happened to the shape of the substance

   b. ☐ that the molecules have moved closer together so that the amount of space the substance occupies is decreased

   c. ☐ that there are fewer molecules in the substance

   d. ☐ that there is a smaller amount of the substance

3. If roads, sidewalks, and railroad tracks were not constructed with spacings between sections (see paragraph B, lines 2 - 3):

   a. ☐ nothing would happen to them when the weather changed

   b. ☐ they could not be constructed as easily as they are

   c. ☐ they would crack or break when the weather changed

   d. ☐ they would not appear to be even

4. Thin glassware is better to use for hot liquids than thick glassware because (see paragraph E, lines 1 - 5):

   a. ☐ the different rates of expansion of the outside and the inside of a thick glass would cause it to break

   b. ☐ it is more pleasing to drink from a thin glass

   c. ☐ thin glasses cost less money to buy than thick glasses

   d. ☐ you cannot feel the heat of the liquid when you hold a thin glass

NOW DO EXERCISE III

A. 1 In order for burning to take place, three conditions must be met:
2
3 a. A fuel must be present.
4
5 b. The fuel must be brought to its kindling temperature. A
6 kindling temperature is the lowest temperature at which
7 a substance catches fire and continues to burn.

B. 1 Different fuels have different kindling temperatures. A fuel is
2 raised to its kindling temperature by applying the proper amount
3 of heat. Paper catches fire easily because it has a low kindling
4 temperature. Coal, because of its high kindling temperature,
5 requires much heat before it will begin to burn. Matches are
6 tipped with phosphorus, or some other low kindling material,
7 to permit the small amount of heat produced by friction to ignite
8 the phosphorus on the head of the match.

C. 1 c. A supply of oxygen (or air) must be present. The greater
2 the amount of oxygen available, the more rapidly a fuel
3 will burn.

1. A fuel is raised to its kindling temperature by (see paragraph B, lines 1 - 3):

   a. ☐ applying heat
   b. ☐ mixing it with another fuel
   c. ☐ providing a supply of oxygen
   d. ☐ none of the above

2. Which has the highest kindling temperature (see paragraph B, lines 3 - 6)?

   a. ☐ coal
   b. ☐ matches
   c. ☐ paper
   d. ☐ phosphorus

3. Which of these is not necessary in order for burning to take place (see paragraphs A, lines 3 and 5 and C, line 1)?

   a. ☐ a fuel brought to its kindling temperature
   b. ☐ a supply of oxygen
   c. ☐ friction
   d. ☐ the presence of a fuel

4. Paragraph A, line 1 reads "In order for burning to take place, three conditions must be met."

As used here, condition refers to:

a. ☐ fuel and kindling temperature, but not oxygen

b. ☐ oxygen and fuel, but not kindling temperature

c. ☐ something essential or necessary to the occurrence of burning

d. ☐ something that is not important for burning to occur

5. Why are matches tipped with phosphorus (see paragraph B, lines 5 - 8)?

a. ☐ because phosphorus cannot be ignited

b. ☐ because phosphorus does not require oxygen in order to burn

c. ☐ because phosphorus has a high kindling temperature

d. ☐ because phosphorus has a low kindling temperature

Time completed ________________

PM 431
22-24

LEVEL I

UNIT 7

UNIT TEST

Time started ______________

FOLLOW these steps in performing the following exercises:

1. READ the paragraph.
2. READ the question and possible answers.
3. GO BACK to the lines that contain the information you need to answer.
4. DECIDE what your answer is.
5. MARK your answer on the paper.

EXERCISE I

A. When certain chemicals are struck by light, their composition changes. Such chemicals are said to be photosensitive. Among the photosensitive chemicals are certain silver compounds. The photosensitivity of silver compounds is the basis for the science of photography.

B. Photographic film is coated with photosensitive silver compounds. When light enters a camera through a lens, it does not strike all areas of the film inside, because not all objects "seen" by the lens reflect light. In those areas struck by light, the silver compounds undergo chemical changes which result in the depositing of silver. The silver deposits darken the areas where they are formed. Thus, the areas struck by light become dark. Film struck by light is called exposed film.

C. When the exposed film is removed from the camera, it is placed in a solution of chemicals, which react with the silver deposits to produce various shades of gray or black. In areas where there are no silver deposits, the film remains white. Thus, white objects appear black on the negative and black objects appear white. A strip of film thus treated is called a negative.

D. After the negative has been made, it is placed in front of a source of light. On the other side of the negative is a piece of photographic paper. The light passes through the negative and strikes the photographic paper. Black areas in the negative (corresponding to white objects) block off the light, however; only white areas (corresponding to black objects) permit the light to pass. The photographic paper is coated with photosensitive chemicals, similar to the chemicals coating photographic film. Where light strikes the photographic paper, the paper turns black; where light fails to strike the paper, the paper remains white. The black areas on the paper thus correspond to the black objects seen by the camera lens, and the white areas correspond to the white objects.

1. The science of photography depends on the fact that (see paragraph A, lines 1 and 3-5):

   a. ☐ a change does not occur in silver compounds when they are exposed to light

   b. ☐ a change occurs in the composition of certain chemicals when they are exposed to light

   c. ☐ certain chemicals are not photosensitive

   d. ☐ certain chemicals are struck by light

2. The silver deposits made on a film correspond to (see paragraph B, lines 2-6):

   a. ☐ the areas that are not darkened on the film

   b. ☐ the objects that have not reflected light

   c. ☐ the objects that have reflected light

   d. ☐ whether or not the lens of a camera has seen the objects correctly

3. White objects appear black on a negative because (see paragraph C, lines 1-3):

   a. ☐ silver is black

   b. ☐ the exposed areas have deposits of silver which react with other chemicals to produce shades of gray and black

   c. ☐ the solution of chemicals makes the unexposed areas black

   d. ☐ the silver has reacted with other chemicals to produce a white effect in the exposed areas

4. Because light passes through only the white area of a negative the photograph will be (see paragraph D, lines 3 and 10):

   a. ☐ black where the film was black

   b. ☐ only black

   c. ☐ only white

   d. ☐ white where the silver deposits have produced a black effect on the negative

5. A negative is the same as (see paragraph C, lines 5-6):

   a. ☐ treated exposed film

   b. ☐ treated photographic paper

   c. ☐ untreated exposed film

   d. ☐ untreated photographic paper

NOW DO EXERCISE II

A. Sound waves are produced when matter vibrates. The human ear is only sensitive to sounds of 16 to 20,000 vibrations per second. The number of vibrations given off by a vibrating body in one second is called the frequency of the sound. Some animals, such as bats, are sensitive to sounds of higher frequency than human beings can hear.

B. The sounds that we do hear can be recognized or identified by three characteristics: pitch, loudness, and tone.

C. Pitch is how high or low a sound is. If the frequency of a sound is high, the pitch will also be high, and vice versa. A violin string that is short, thin and tight produces a higher pitch, because it initiates more vibration per second than a long, thick, loose string.

D. The loudness of a sound depends on the energy of a sound wave. A loud sound has more energy. For example, a violin string will produce a loud sound if it is plucked vigorously, and a soft sound if it is plucked gently.

E. The tone or quality of a sound is that property which distinguishes one sound from another when both have the same pitch and loudness. This characteristic depends on the manner in which the object is vibrating. Thus, a wind instrument such as a pipe organ or clarinet, a string instrument such as a piano or guitar, and a percussion instrument such as a tambourine or drum have different tones because matter is vibrating in a different way.

1. The sentence, "Some animals, such as bats, are sensitive to sounds of higher frequency than human beings," means that bats can hear sounds with (see paragraph A, lines 2-4 and paragraph C, lines 1-2):

   a. ☐ a lower pitch

   b. ☐ less than 20,000 vibrations per second

   c. ☐ more than 20,000 vibrations per second

2. The number of vibrations per second determines (see paragraph A, lines 3-4 and paragraph C, lines 2-3):

   a. ☐ the loudness of a sound

   b. ☐ the pitch of a sound

   c. ☐ the tone of a sound

   d. ☐ none of the above

3. The sound produced when a ping-pong ball hits a table is not as loud as the sound produced when a bowling ball hits a table because the (see paragraph D, lines 1-2):

   a. ☐ lighter object imparts less energy to the waves produced

   b. ☐ lighter object imparts more energy to the waves produced

   c. ☐ pitch is different

   d. ☐ tone is different

4. A violin always has (see paragraph E, lines 1-2):

   a. ☐ a different degree of loudness than a trumpet

   b. ☐ a different pitch than a trumpet

   c. ☐ a different tone than a trumpet

   d. ☐ none of the above

5. The muscles surrounding the vocal cords of a human being determine the tightness of the cords and thus determine (see paragraph C, lines 2-5):

    a. ☐ the loudness of our voice
    b. ☐ the pitch of our voice
    c. ☐ the tone of our voice
    d. ☐ none of the above

NOW DO EXERCISE III

A. When the nucleus of a fissionable atom such as uranium (with an atomic mass of 235) is bombarded by a neutron, the uranium nucleus captures the neutron and splits into fragments. One fragment usually forms the nucleus of a barium atom (with an atomic mass of 137); another fragment forms the nucleus of a krypton atom (with an atomic mass of 84). Three neutrons are also produced when the uranium nucleus splits in this fashion. If one of the three ejected neutrons is captured by another uranium atom with an atomic mass of 235, a second fission occurs. The products of this second fission liberate more neutrons, which can produce a third fission, and so on. A series of successive fissions is called a chain reaction.

B. If we add the mass of the uranium atom, 235, and the mass of one neutron, 1; we get a mass of 236. If we add the mass of the barium atom, 137, the mass of the krypton atom, 84, and the mass of the three neutrons that are produced, 3; we get a mass of 225. The difference in the sum of the two masses can be explained by the fact that the "lost" mass has been converted into energy. A very small loss in mass results in an enormous quantity of energy.

C. The rate at which uranium atoms will take part in a chain reaction depends on the amount of uranium present. When the amount of the fissionable material reaches a critical point, the chain reaction occurs instantaneously; and the energy released from the resulting violent explosion is uncontrollable. If, however, the amount of matter is kept below a critical level, the chain reaction will occur more slowly, and the enormous amounts of energy produced can be controlled and utilized.

1. A fissionable atom is one that can (see paragraph A, lines 1-3):

   a. ☐ fuse to form a larger atom

   b. ☐ increase the size of its nucleus

   c. ☐ reduce the size of its nucleus

   d. ☐ split into fragments

2. When fission occurs, the loss in mass is accounted for by (see paragraph B, lines 5-6):

   a. ☐ the capture of a neutron

   b. ☐ the formation of two atoms that have a larger atomic mass

   c. ☐ the release of energy

   d. ☐ none of the above

3. "Critical point" as it is used in line 3 of paragraph C refers to the (see paragraph C, lines 2-5):

   a. ☐ amount of fissionable material that will produce a reaction in many atoms at the same time

   b. ☐ point at which a nuclear reaction occurs

   c. ☐ resulting violent explosion

   d. ☐ size of the uranium atom

Time completed ______________

LEVEL I
UNIT 8
UNIT TEST

Time started ________________

1. Roger went on a 3-day hike. He walked 5-3/4 miles on the first day, 7-1/6 miles on the second day and 4-7/8 miles on the third day. How many miles did he walk all together?

   a. ☐ 16-11/24
   b. ☐ 17-3/8
   c. ☐ 17-3/4
   d. ☐ 17-19/24
   e. ☐ none of these

2. There are 144 square inches in a square foot. How many square inches are there in 12-1/2 square feet?

   a. ☐ 1600
   b. ☐ 1628
   c. ☐ 1728
   d. ☐ 1790
   e. ☐ 1800

3. How much is two thousand three hundred and five tenths, and one hundred twenty-five and one hundredth, and five thousand ten and fifteen hundredths?

   a. ☐ 7435.21
   b. ☐ 7435.66
   c. ☐ 7485.25
   d. ☐ 7590.1
   e. ☐ 8716.01

4. The price of the wallpaper Mrs. Jones selected is $1.25 a square yard. The paper hanger figures out that he will need 95 square yards to do the job. How much will the wallpaper cost?

a. ☐ $108.75

b. ☐ $118.75

c. ☐ $121.00

d. ☐ $125.00

e. ☐ none of these

5. Of the 300 people who were in the movie theater when the poll was taken, 1/3 of them were less than 20 years old and 1/6 were between 20 and 25. How many people over 25 were in the theater?

a. ☐ 50

b. ☐ 100

c. ☐ 150

d. ☐ 200

e. ☐ none of these

6. An advertisement for a clearance sale said 1/3 off the price of all merchandise. If a television usually sells for $195, how much should the sale price be?

a. ☐ $65

b. ☐ $125

c. ☐ $130

d. ☐ $140

e. ☐ $150

7. About half of the strawberry crop was ruined by a sudden frost. About one quarter of the undamaged fruit was spoiled in transit to the market. How much of the harvested strawberries could the farmers sell at the produce market?

a. ☐ 1/6

b. ☐ 1/4

c. ☐ 1/3

d. ☐ 3/8

e. ☐ 1/2

8. The following is a price list from a photography store.

first print	$1.20 each
prints 2 thru 5	1.00 each
additional prints	75 each

How much would it cost to have 15 prints of the same picture made?

a. ☐ $11.25

b. ☐ $12.70

c. ☐ $12.95

d. ☐ $13.70

e. ☐ none of these

9. A store receives from a manufacturer a 10% discount when it pays for a shipment within 30 days. It receives an additional 2% discount if it pays within 10 days. The bill for a shipment of goods is $3,560. How much will the store save if it mails out the check 3 days after it receives the goods?

a. ☐ $71.20

b. ☐ $356.00

c. ☐ $427.20

d. ☐ $3132.80

e. ☐ none of these

10. In the first winter clearance sale of a store, prices are reduced 20%. After 2 weeks, what is left is marked down 10% . How much of the original price would you save if you bought something now?

a. ☐ 10%

b. ☐ 20%

c. ☐ 22%

d. ☐ 28%

e. ☐ 30%

11. New York City has a 5% retail sales tax. In the rest of New York State the retail sales tax is only 3%. How much money would you save if you bought a $3,250 car outside New York City but inside New York State?

a. ☐ $16.25

b. ☐ $32.50

c. ☐ $65.00

d. ☐ $97.50

e. ☐ $172.50

12. A man's salary is $345 a month. He spends $90 a month in mortgage payments on his house. The mortgage payment is what percent of his monthly salary? (To the nearest percent)

a. ☐ 20%

b. ☐ 25%

c. ☐ 26%

d. ☐ 28%

e. ☐ 30%

13. Frank wants to trade in his car against a new car. The dealer tells him he will give Frank a 20% credit equalling $450 toward the price of the new car. How much would the new car cost Frank if he didn't have the trade-in?

a. ☐ $2250

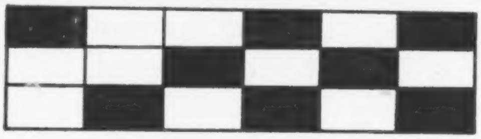
b. ☐ $3600

c. ☐ $4500

d. ☐ $9000

e. ☐ none of these

14. In the figure below, what percent of the figure is shaded?



a. ☐ 40%

b. ☐ 44%

c. ☐ 50%

d. ☐ 53%

e. ☐ 80%

15. A glass manufacturer produces about 2000 water glasses a week. About 2.1% of the glasses break in transit to stores. How many glasses are lost in this way each week?

a. ☐ 4.2

b. ☐ 21

c. ☐ 42

d. ☐ 210

e. ☐ 420

16. Of the 25,000 cars assembled in an automobile plant, 91% passed a routine standards examination. How many cars were rejected?

a. ☐ 225

b. ☐ 2250

c. ☐ 2275

d. ☐ 2350

e. ☐ 22750

17. On a certain snowy day last winter, 87.4% of the 1500 students enrolled at a school were present. How many students were absent on that day?

a. ☐ 189

b. ☐ 204

c. ☐ 1301

d. ☐ 1311

e. ☐ none of these

18. The Franklins have budgeted their vacation money as follows.

transportation	30%
hotel accommodations	20%
meals	28%
entertainment	12%

If their vacation allowance is $300, how much of this is left over to cover any emergencies that might occur?

a. ☐ $10

b. ☐ $30

c. ☐ $45

d. ☐ $60

e. ☐ none of these

19. At a certain high school 375 out of a graduating class of 650 are going on to college. What percent of the graduating class does this represent?

a. ☐ 52.82%

b. ☐ 54.69%

c. ☐ 57.69%

d. ☐ 57.82%

e. ☐ 60.00%

Time completed ______________

LEVEL II

UNIT 1

UNIT TEST

Time started ______________

I

In 1798 Robert Malthus predicted that the population of the earth would soon be too large for the earth to feed because people multiply more quickly than food increases. Today his prediction seems about to be realized. At present the world food supply is expanding at 1 percent a year; world population is expanding at 1.8 percent a year. As a result, the average amount of food per person is decreasing at a time when many of the world's inhabitants are already living below subsistence level. If the rate of population increase and food increase remain as they are, by the year 2000 the world population will be 7.4 billion, slightly more than twice the present population. This will mean an average of 1340 calories* per person per day, less than the starvation level of 1350 calories.

In searching for solutions to this problem, scientists have been directed by the following observation: mankind has already succeeded in cultivating** the vast majority of the earth's lands that are fit for cultivation. Also, more and more land is being absorbed into the ever-growing urban complexes that are springing up all over the world. Realizing that conventional agriculture cannot provide the additional sources of food the world will need, a new brand of farmer has struck out to make nature yield her bounty--the sea farmer. Malthus may have correctly estimated the limitations of an acre of farmland but he did not take into account the undreamed of potentials of the oceans.

Mankind has been turning to the sea as a source of food for centuries--it is not in this that the sea farmer is a pioneer. However, he has turned to the sea -- the way a hunter of prehistoric times turned to the forests for game -- randomly, taking what he could find. Aquiculture,*** however, substitutes for this random hunting systematic methods of cultivating the sea as a source of food. Aquiculture is a technology for developing the sea's potential food sources, as agriculture has done for the world's landed portions. Aquiculturists hope to increase the yield of the sea by artificially making the sea more productive than it naturally is. Many of the conventional techniques developed for traditional agriculture can be applied to "farming the sea." Aquiculturists have plans of plowing the sea, fertilizing it and weeding the ocean beds, warming areas by atomic energy, and even fencing off underwater pastures electronically and chemically. By thus improving upon the natural aquatic environment, they hope to vastly increase the sea's natural yield of fish, shellfish, and plants. In addition to supplying the general food deficiency, the anticipated sea food will furnish large amounts of protein, one of the most essential of man's nutritional needs. At its current productivity rate, it is estimated that the sea is yielding only one-tenth of the food it is capable of producing. If the aquiculturists are not overestimating its capacities, it will ultimately be able to feed a population almost ten times the present size.

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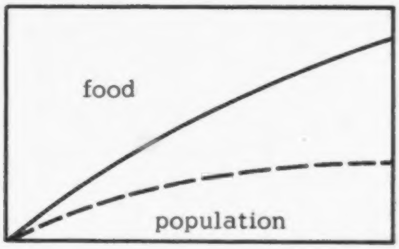
*A calorie is a unit of measurement expressing the amount of energy food can produce.

**To cultivate means to raise crops.

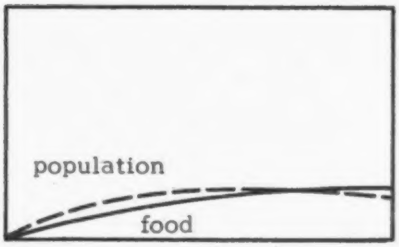
***The prefix aqua means water.

1. Which of the following graphs most correctly represents the present relationship of the population increase to the food increase?

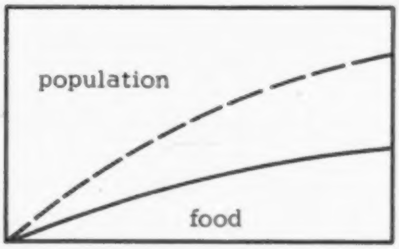
a. ☐



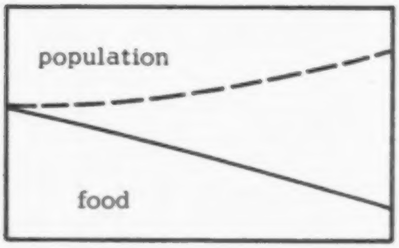
b. ☐



c. ☐

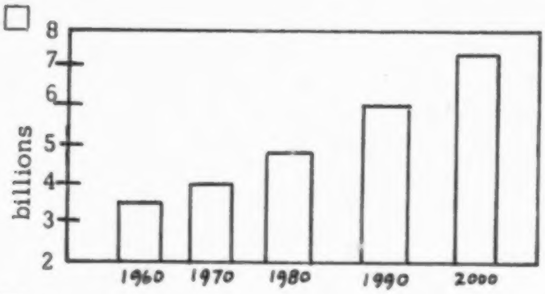


d. ☐

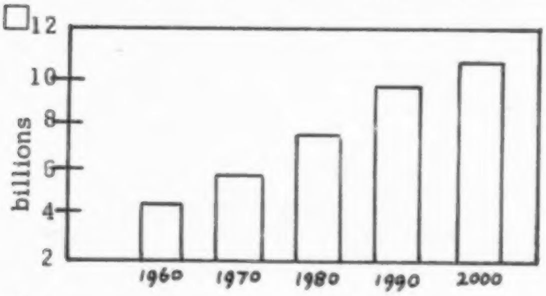


2. Which of the following graphs best represents the population increase from 1960 to 2000?

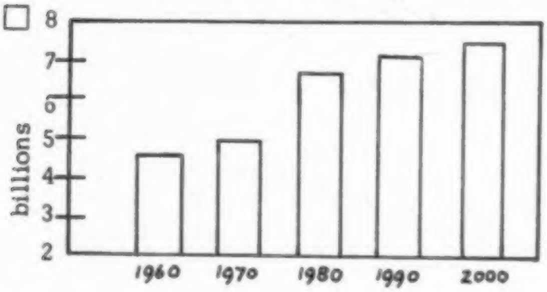
a. ☐



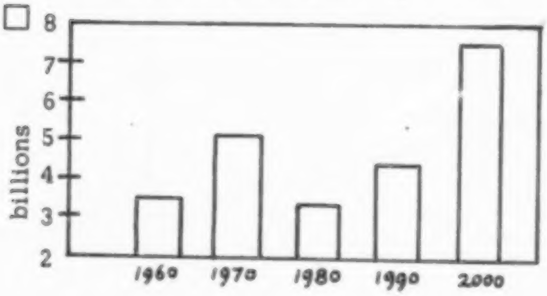
b. ☐



c. ☐



d. ☐



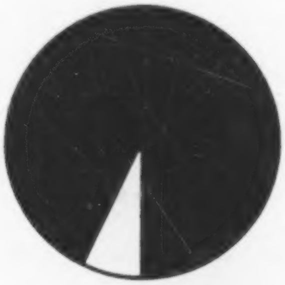
3. Aquiculturists assert that the sea is now producing only a fraction of what it could produce. Which of the following graphs represents the fraction of the sea's capabilities that are now being realized?

LEGEND

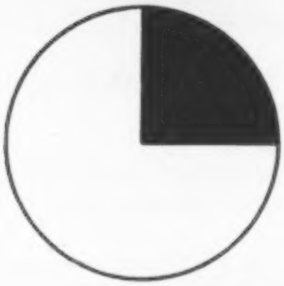
■ actual production

☐ potential production

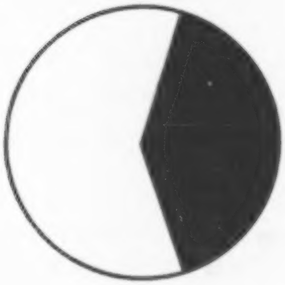
a. ☐



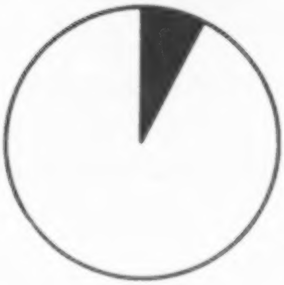
b. ☐



c. ☐



d. ☐



4. Aquiculturists predict that the sea is probably capable of supporting a maximum population of approximately:

   a. ☐ 3.5 billion people

   b. ☐ 7.4 billion people

   c. ☐ 35 billion people

   d. ☐ 74 billion people

5. Aquiculture offers hope against world starvation by:

   a. ☐ controlling the increase in the world's population

   b. ☐ developing greater levels of soil productivity than Malthus could envision

   c. ☐ showing that the Malthusian estimation of the population increase was exaggerated

   d. ☐ uncovering an undeveloped source of food and systematizing methods to develop it

6. According to Malthus the population of the world would someday run out of food because:

   a. ☐ as the earth became more crowded there would be less and less land available for cultivation

   b. ☐ centuries of tillage would lead to soil depletion

   c. ☐ the food supply remains the same while the population increases

   d. ☐ the population increases at a faster rate than the food supply

7. This selection describes present aquiculturists as pioneers because they are:

a. ☐ emphasizing the importance of protein to man's nutritional needs

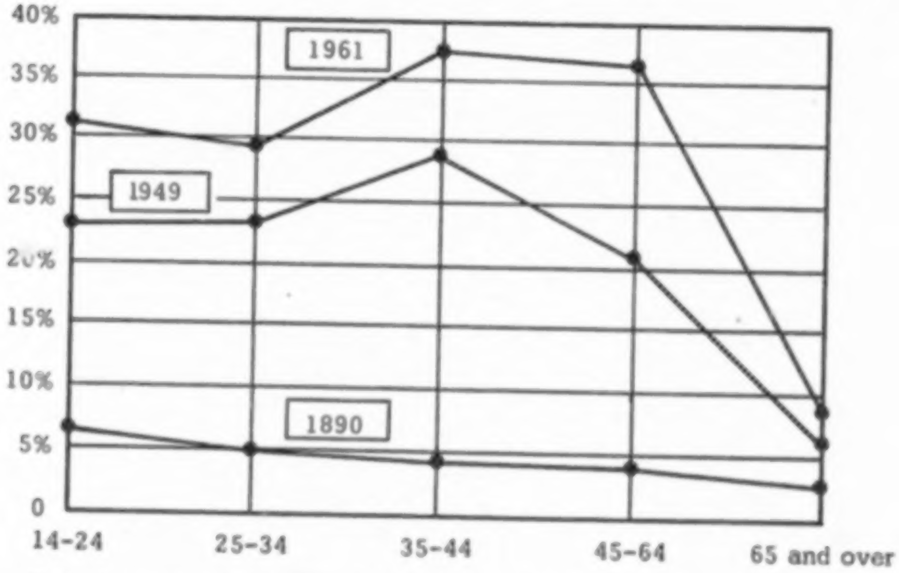
b. ☐ experimenting with scientific means of increasing the productivity of the sea

c. ☐ turning to the sea rather than to the land as a source of food

d. ☐ using scientific methods to increase the food supply

II

The patterns of family life that we take for granted today are the combined result of the cultural traditions to which our society is heir,* and the demands of modern industrial life. Traditionally, the role of the married woman has been that of wife and mother. When she contributed to the economic resources of her family it was mainly in the form of producing food, articles of clothing, and household utensils. The products usually were consumed by her own family. Industrialization has changed this in two ways: first, the production of virtually all commodities (goods) has been removed to the factory. There is little economic contribution that a woman can make to her family's resources while remaining within the confines of her home. At the same time, however, the standard of living has significantly risen. Consumption has risen, and with it levels of expectation. Few families can satisfy their desires with one income, and many families cannot even satisfy their needs in this way. As a result, married women are joining their husbands in the labor force in greater and greater numbers. The graph below illustrates this development.



X:6 Percentage of Married Women in the Working Force

The entrance of women into the labor force in such large quantities has made an indelible (unerasable) mark on the family structure, particularly on the structure of relationships between husband and wife. As a wife and mother, the woman had a well tried and tested path to follow. She had a certain amount of security, respect, and authority over her home and children. Along with the security and respect went an unchallenged understanding that the woman of the family was subservient (had to obey) to her husband. As the woman of the family steps more and more into the role of family breadwinner and economic agent in her own right, the husband is no longer regarded as the sole authority of the family. The claim of the wife and mother to equality of authority and status has naturally brought with it the disruption of traditional family patterns.

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*An heir is one who inherits something.

This change in the role and status of the woman in the family, and the new structure of relationships it implies, has been a major cause of maladjustment and disorientation within the family. It places heavy strains on husband and wife alike. The husband must adjust his own role within the family to accommodate his wife as an equal partner. The woman must adjust her role as breadwinner and her status as an independent agent to her traditional role as wife and mother, a role which still makes its claims upon her. She often faces the frustration of preferring one role, yet being forced to assume the other. These tensions working on husband and wife often result in a deterioration* of their relationship to each other.

1. This selection claims that the family structures prevalent today arise out of:

   a. ☐ cultural traditions that go back many centuries

   b. ☐ emotional problems which strike more people than ever before

   c. ☐ new demands that an industrial society places on traditional family roles and relationships

2. Before the industrial revolution the attitude of a married woman to her lower status was, according to this selection, one of:

   a. ☐ acceptance

   b. ☐ distaste

   c. ☐ preference

   d. ☐ rebelliousness

---

*Deterioration means breaking down.

3. According to the graph, the smallest increase of married women in the working force over the seventy years has taken place in age group:

   a. ☐ 25 - 34

   b. ☐ 35 - 44

   c. ☐ 45 - 64

   d. ☐ 65 and over

4. Which age group showed an increase from 1890 to 1949 which is approximately equal to its increase from 1949 to 1961 ?

   a. ☐ 14 - 24

   b. ☐ 25 - 34

   c. ☐ 35 - 44

   d. ☐ 45 - 64

5. In 1949 the greatest number of married women in the working force probably:

   a. ☐ had young children

   b. ☐ were high school age

   c. ☐ were grandmothers

6. This selection would lead you to expect that between 1890 and 1961, divorce rates have:

   a. ☐ gone down

   b. ☐ gone up

   c. ☐ remained the same

Time completed ______________

PM 431
30-35

LEVEL II

UNIT 2

UNIT TEST

Time started ______________

Our forefathers fought the Revolutionary War in order to gain their rights and freedom as individuals. But how were the rights of individuals to be guaranteed in the new nation? Some countries, like Great Britain, have unwritten constitutions. But, the Founding Fathers decided that the rights of citizens must be written down in a document that would guarantee for all time a democratic form of government and preserve the basic rights of all free men. The United States has been governed within the limits set down in our Constitution for over 175 years. The United States Constitution stands today as the oldest written constitution in the world.

But how has the Constitution been able to last through all the changes that have occurred in the world since 1787? The Founding Fathers knew that times would change and that the Constitution must be made to apply to events in the future as well as in the present. Therefore they made the document very flexible so that it could be reinterpreted by the coming generations as they saw fit. It is for this reason that the Constitution is just as significant and applicable to our lives today as it was when it was first written.

This flexibility of the Constitution presented, however, one major problem. Who would interpret the meaning of the Constitution? There was no provision within the document itself for the allocation of this power, and thus it was inevitable that disputes would arise among the three branches of government about which should have the final word on what the Constitution means.

In 1803, this dispute was settled by the case of Marbury vs. Madison. In this case, the Supreme Court established its right to interpret the meaning of the Constitution and to decide whether laws passed by the Congress and the President were in accord with the principles set down in the Constitution. This implied power of the Judicial Branch to rule on the constitutionality of laws is known as Judicial Review. It is one of the most important checks that the Judicial Branch has on the powers of the Legislative and Executive Branches. Today the Supreme Court stands as the foremost interpreter of the Constitution.

1. According to the passage, one difference between England and the United States is that:

   a. ☐ England has no written constitution whereas the United States has one.

   b. ☐ The United States believes in the rights of individuals whereas England does not.

   c. ☐ The United States Constitution has lasted longer than England's.

   d. ☐ The United States has a President whereas England has a King (or a Queen).

2. The United States Consttution has lasted for over 175 years because:

   a. ☐ it was writen in such a way that it could deal with changing times

   b. ☐ the Founding Fathers included everything in it that could possibly happen either in the present or in the future

   c. ☐ the world has remained pretty much the same as it was in 1787

   d. ☐ there is no possible means of changing it

3. The power of the Supreme Court to interpret the meaning of the Constitution:

   a. ☐ was a power given to the Supreme Court by the Constitution

   b. ☐ was first established in 1803 as a result of an agreement among the three branches of the government

   c. ☐ was first established in 1803 by the case of Marbury vs. Madison

   d. ☐ was granted to the Supreme Court by an Act of Congress

4. Judicial Review refers to the Supreme Court's power to:

   a. ☐ make the laws of the land

   b. ☐ review the decisions of the lower courts in the Judicial Branch

   c. ☐ rule on all disputes among the three branches of the government

   d. ☐ rule on the constitutionality of laws passed by the Congress and the President

5. According to the passage, which of the following is not true?

   a. ☐ Judicial Review is an important part of the checks and balances system of our government.

   b. ☐ Marbury vs. Madison established the principle of Judicial Review.

   c. ☐ The Founding Fathers established the Supreme Court as the supreme interpreter of the Constitution.

   d. ☐ The Founding Fathers showed great foresight when writing the Constitution.

In 1913, President Woodrow Wilson decided that the rapid growth of the United States economy called for a more stable system of currency and a centralized banking system. In view of this need, the Congress passed the Federal Reserve Act of 1913, which provided for a Board of Governors to be set up as a centralized federal banking agency to administer policy for the newly created Federal Reserve Banks. The act also called for a regional system whereby the country would be divided into twelve districts, each having a central reserve bank. These central banks were to be chartered by the Federal government but would be owned by private member banks. All national banks were ordered to become members of the new system, and those state banks which so desired could also become members.

The primary function of the Federal Reserve System was to prevent "runs" on local banks. If all the depositors of a particular bank should simultaneously attempt to take all their money out of that bank, the bank would not be able to cover these requests. This is because banks loan out most of the money that they have on deposit. In such a situation, the depositors, unable to obtain their money, would probably lose all confidence in the bank and panic. To prevent just such an occurrence, the Federal Reserve System provides additional funds to member banks to cover all depositor requests. These timely loans to member banks have helped greatly to lessen the chance of "runs" and panics.

The Federal Reserve Banks do not deal directly with individuals or with private business. They deal only with the member banks. In fact, they provide the same services for the member banks, such as loans and deposits, that the member banks provide for individual people. For this reason, the Federal Reserve Banks are known as "bankers' banks."

6. The Federal Reserve System was created because of the need for:

   a. ☐ a banking system under federal control

   b. ☐ centralization of gold reserves

   c. ☐ more national banks owned and operated by the Federal government

   d. ☐ more state banks

7. A "run" on a bank occurs when:

   a. ☐ depositors all try to take their money out of the bank at the same time

   b. ☐ Federal Reserve Banks loan money to individuals and private business

   c. ☐ the Federal government issues charters for too many new banks

   d. ☐ the Federal Reserve Banks supply loans to member banks

8. Federal Reserve Banks are called "bankers' banks" because:

   a. ☐ they deal solely and directly with individuals and private business

   b. ☐ they deal solely and directly with member banks

   c. ☐ they deal solely and directly with the Federal government

   d. ☐ they hold the personal deposits of people who are in the banking business

9. The author feels that the Federal Reserve System has been most effective and important in:

   a. ☐ combining the functions of national and state banks

   b. ☐ preventing panics and "runs" on local banks

   c. ☐ providing services for the Federal government

   d. ☐ showing the power of the Congress to charter banks

10. The purpose of this passage is to:

- a. ☐ compare the functions of state, federal, and local banks
- b. ☐ explain the basic functions of the Federal Reserve System
- c. ☐ show how the Federal Reserve System deals with individual depositors and businesses
- d. ☐ show the defects in the Federal Reserve System

When the Founding Fathers wrote our Constitution, they did not include any plan for the governing of cities. There was no need for them to consider this question, since at the time less than 5% of the people lived in municipalities of over 2500 people. Today, however, more than 7 out of 10 United States citizens lived in urban centers,* so the matter of governing our cities has become a vital one.

Different cities have worked out different plans. The oldest of these plans, and the most widely used, is the mayor-council plan. Under this plan, an elected mayor acts as the administrative head of the government, while the elected council, patterned after state and federal legislatures, has two principal duties: to pass ordinances, which contain rules for controlling such matters as building standards and traffic regulation, and to prepare a budget for spending and raising city funds.

A second form of municipal government is called the commissioner plan. Under this system, a small group of men is chosen by the voters to run the government. These commissioners act as both administrators and legislators. Enactment of laws lies in the hands of the commission as a whole, while each commissioner is responsible for a certain aspect of administration. For example, one commissioner might be in charge of the traffic department, while another would have the responsibility for the parks and recreation centers of the city.

The third plan involves a small council, usually elected from the city at large. This council then appoints a chief administrative officer, the city manager, who has most of the administrative responsibility for running the government. The city manager is responsible to the council.

11. Which of these is an example of a municipality?

    a. ☐ a city manager

    b. ☐ a plan

    c. ☐ a principal

    d. ☐ an urban center

---

*An urban center is a city.

12. Ordinances, as used in the second paragraph, means:

a. ☐ budgets

b. ☐ duties

c. ☐ laws

d. ☐ tests

13. The mayor-council plan is an example of:

a. ☐ a compromise

b. ☐ an indirect democracy

c. ☐ separation of powers

d. ☐ a tyrannical government

14. Under which plan might the head of the city government be a professionally trained, non-political man hired from outside the city?

a. ☐ city-manager plan

b. ☐ commissioner plan

c. ☐ mayor-council plan

15. The author of the above passage:

a. ☐ favors the city-manager plan

b. ☐ favors the commissioner plan

c. ☐ favors the mayor-council plan

d. ☐ does not state a preference for any of the plans

Time completed ______________

LEVEL II

UNIT 3

UNIT TEST

Time started ______________

Foreign-born adults are seldom assimilated to any great extent into American culture. They hold to many old habits, preferences, and loyalties. Their speech reflects foreign origin in accent and idiom if they acquire the English language at all. The atmosphere in the home, the furnishings, the diets, and the family customs, have a strong imprint of the land of origin. The children, on the other hand, acquire the new language without perceptible foreign traces and, through their playmates and school life, learn to prefer the American costumes and mannerisms and to hold in contempt the foreign aspects of their home life. They may even be ashamed of their parents and may lose respect for their abilities and their judgment.

1. Assimilated, as it is used in line 1, means:
   - a. ☐ blended
   - b. ☐ born
   - c. ☐ discovered
   - d. ☐ put to use

2. The author of the above passage implies that:
   - a. ☐ foreign-born adults are ignorant
   - b. ☐ foreign-born adults should be forced to adopt American culture
   - c. ☐ many adult immigrants in this country never learn English
   - d. ☐ only young immigrants should be allowed into this country

3. The differences between the two generations of immigrants described above would probably lead to:
   - a. ☐ a lack of any culture on the part of the parents
   - b. ☐ economic advancement of the parents
   - c. ☐ family disorganization
   - d. ☐ political anarchy

4. This paragraph is best summarized by which of the following statements?

a. ☐ American customs are more complicated than the customs of other countries.

b. ☐ Foreign-born children become Americanized more quickly than their parents.

c. ☐ Immigrant children do not respect their parents.

d. ☐ It is nearly impossible for foreigners to adopt American culture.

As a melting pot society, the United States is made up of many minority groups. Therefore, it would seem that Americans should be tolerant toward such social minorities. However, despite our foundations in democracy and equality, the United States has been no stranger to conflicts arising out of the hatreds among different social groups.

Today the emphasis in civil rights controversies and action is centered on the American Negro. However, there have been periods in our history in which Italians, Jews, Irish and others have found themselves victims of the same intolerance which plagues the Negro today.

But what is it that breeds such distorted attitudes towards others? Why do men need to feel superior to someone else? There are no simple answers to these questions. But it seems that some men have a need to blame others for their own shortcomings and problems. In other words, men find a scapegoat for their own deficiencies. This was one of the bases for the discrimination against the Jews in Germany during World War II. Germany had many severe economic problems in the 1920's, and by the early 1930's, Germans were looking for some avenue by which to relieve their frustrations and feelings of insecurity.

When Hitler came to power in 1933, he pointed to the Jews as being the source of all Germany's problems. Hitler felt that the Germans, as members of the blond-haired, blue-eyed Aryan race, were a superior people. In order for them to maintain their superiority, he said that the Germans must maintain themselves as pure stock. This meant that all minorities, such as the Jews, must be abolished. This criminal, insane policy demonstrates just how far racial prejudice can be carried. Hitler, like those who discriminate against Negroes today, was wrong in believing that any race is superior to another. Thus, his attempt to establish a pure Aryan stock had no meaningful purpose and was only the misguided, barbaric desire of a madman.

5. This passage would most likely be found in a textbook on:

    a. ☐ economics
    b. ☐ geography
    c. ☐ history
    d. ☐ sociology

6. The United States is often called a "melting pot" society because it:

   a. ☐ has a representative democracy form of government

   b. ☐ has citizens of many different races and nationalities

   c. ☐ is plagued by racial conflicts and hatreds

   d. ☐ is tolerant towards minority groups

7. A scapegoat is a person or group of people who:

   a. ☐ are blamed for the troubles of others

   b. ☐ are intolerant of others

   c. ☐ belong to a majority group

   d. ☐ cause economic problems

8. The author discusses Hitler in an attempt to:

   a. ☐ Show how Hitler shifted blame for Germany's economic problems.

   b. ☐ describe how Hitler conquered most of Europe during World War II

   c. ☐ illustrate the superiority of the Aryan race

9. According to the author, why do many people feel prejudice towards others?

   a. ☐ because they don't want to accept responsibility for their own faults

   b. ☐ because they want to feel they are better than other people

   c. ☐ both of the above

   d. ☐ neither of the above

In the early preindustrial stage of our civilization it was a widespread practice to guard and shelter women, and to reduce their privileges and accessibility so that little possibility of escape from unhappy marriages was available to them. Temptations to leave one husband in favor of another were infrequent, for the duties of a wife were so standardized that there was less difference from one home to another than is found in modern urban culture.

For more than a century women of modern civilization have been engaged in a concerted and highly successful drive to gain emancipation from traditional restrictions and to gain equal opportunities with men. In the second half of the nineteenth century they succeeded in opening the doors to higher education on a large scale. During the same period many new careers opened up, some of them largely monopolized by women.

10. What does emancipation (line 8) mean?

a. ☐ benefit

b. ☐ employment

c. ☐ equality

d. ☐ freedom

11. The phrase "the duties of a wife were so standardized" means that:

a. ☐ all wives did about the same things

b. ☐ the duties of wives were difficult

c. ☐ the women worked in factories

d. ☐ the women couldn't stand their jobs

12. Which of the following is an example of a career that is nearly monopolized by women?

a. ☐ farming

b. ☐ nursing

c. ☐ teaching

d. ☐ writing

13. Which of the following statements are implied by this paragraph?

a. ☐ After the Industrial Revolution, fewer women wanted divorces than before.

b. ☐ Divorces were illegal before the Industrial Revolution.

c. ☐ Men today should take better care of their women, by protecting and sheltering them.

d. ☐ Women were not allowed to go to college before the middle of the nineteenth century.

14. According to the paragraph, how did the women of today get the privileges they now enjoy?

a. ☐ the privileges were a natural outcome of the Industrial Revolution

b. ☐ they fought for the privileges themselves

c. ☐ they were given the privileges by their husbands

d. ☐ the paragraph does not tell

Recently, the Supreme Court of the United States has been intimately involved with the civil rights movement. The Court has limited powers in this field, but it has been trying desperately to rid the country of laws which discriminate against Negroes. These "Jim Crow" laws are aimed at keeping Negroes from exercising their rights as American citizens. As long as such laws exist, Negroes are prevented from obtaining the same opportunities in education, employment, and overall standards of living that white people possess.

But although the Supreme Court has been attempting to help the cause of civil rights, the progress toward equality has been slow. Many Negroes feel that it has been too slow. After all, Negroes have been free for over one hundred years and many feel that they have already waited too long for their rights. The Negro today feels frustrated and hopeless as he views his present situation.

Psychologists tell us that "frustration breeds aggression," and this has been the case with regard to the American Negro in the 1960's. The frustration that the Negro experiences has pushed conflicts and antagonisms between Negroes and Whites into open, aggressive hostility. One only has to view the burned wreckage of riot-torn cities like Detroit, Newark, and Los Angeles to find evidence of this new violent phase in race relations and civil rights conflicts. The riots are burning evidence of the Negro minority's frustrated desire to gain equal opportunities in education, employment and voting rights.

But these riots point up something much more basic than the destructive impulses of suppressed people. If part of the American population is kept uneducated and out of work, the potential manpower resources and economic growth of the United States are not being exploited* to their fullest capacity. Thus, not just the Negroes, but the entire population loses when the majority discriminates against a minority group.

*Exploit means to take advantage of.

15. A "Jim Crow" law is best described as a law that:

    a. ☐ discriminates against Negroes

    b. ☐ gives equal opportunities to all people

    c. ☐ is passed favorably by the Supreme Court

    d. ☐ no longer exists in the United States

16. The present frustration of the American Negro has resulted in:

- a. ☐ a more aggressive phase in the civil rights movement
- b. ☐ less aggression on the part of Negroes
- c. ☐ less favorable action by the Supreme Court
- d. ☐ slow progress toward equality

17. The author seems to feel that the riots:

- a. ☐ are mainly an expression of the frustration of the Negro
- b. ☐ are organized by criminals
- c. ☐ have hurt the cause of the Negro
- d. ☐ will help the cause of the Negro

18. Racial discrimination weakens the entire United States economy because:

- a. ☐ a large segment of the working force is not being used effectively
- b. ☐ "Jim Crow" laws apply only to Negroes
- c. ☐ riots destroy cities
- d. ☐ the Supreme Court refuses to deal with civil rights problems

Time completed ______________

PM 431
39-42

LEVEL II

UNIT 4

UNIT TEST

Time started ________________

Margaret, are you grieving
Over Goldengrove unleaving?
Leaves, like the things of man, you
With your fresh thoughts care for, can you?
Ah! as the heart grows older
It will come to such sights colder
By and by, nor spare a sigh
Though worlds of wanwood leafmeal lie;
And yet you will weep and know why.
Now no matter, child, the name:
Sorrow's springs are the same.
Nor mouth had, no nor mind, expressed
What heart heard of, ghost guessed:
It is the blight man was born for,
It is Margaret you mourn for.

1. In lines 1 - 4 of the poem above, the poet finds Margaret:

   a. ☐ angry because people have not bothered to water the shrubbery

   b. ☐ marveling over the beautiful many-colored leaves

   c. ☐ sad because nature is dying

   d. ☐ indifferent to the world of nature

2. In lines 5-8 the poet tells Margaret that as she grows older she will:

   a. ☐ become less pessimistic about life

   b. ☐ become less sad about what grieves her

   c. ☐ feel nature more intensely

   d. ☐ mourn death strongly

3. How does the poet interpret Margargaret's feelings?

a. ☐ She is foolishly worrying about something that should not bother her.

b. ☐ She is motivated by selfishness and is really only thinking about herself.

c. ☐ Half-unknowingly, she is mourning because she and all mankind must eventually die.

d. ☐ She will realize someday that her present feelings were correct.

Surprised by joy--impatient as the wind--
I turned to share the transport- O! with whom
But Thee, deep buried in the silent tomb,
That spot which no vicissitude* can find.
Love, faithful love, recall'd thee to my mind--
But how could I forget thee? Through what power,
Even for the least division of an hour,
Have I been so beguiled as to be blind
To my most grievous loss? That thought's return
Was the worst pang that sorrow ever bore,
Save one, one only, when I stood forlorn,
Knowing my heart's best treasure was no more;
That neither present time nor years unborn
Could to my sight that heavenly face restore.

4. When he cannot satisfy the impulse to share his sudden joy (Lines 1-2), the poet feels:

a. ☐ anger

b. ☐ disgust

c. ☐ happy

d. ☐ sorrow

---

* Vicissitude means change of good or bad fortune

5. MATCH the phrases in Column 1 with the feelings which they express (Column 2).

A. I turned to share the transport
(line 2)

B. To my most grievous loss
(line 9)

C. That thought's return
Was the worst pang . . .
(line 10)

D. . . . when I stood forlorn . . .
(line 11)

1. _____ extremely sharp pain of sorrow and regret
2. _____ hopelessness
3. _____ unbearable loneliness
4. _____ overwhelming happiness

6. Remembering his beloved causes the poet to feel:

a. ☐ angered because he cannot get her out of his mind

b. ☐ glad that present joys have helped him to forget her

c. ☐ hopeful that he will see her heavenly face again

d. ☐ hopeless because he will never see her again and cannot forget her

The importance of what had happened was out of proportion to its appearance; there had really been a change in her life. What it would bring with it was as yet extremely indefinite; but Isabel was in a situation that gave value to any change. She had a desire to leave the past behind her and, as she said to herself, to begin afresh. She closed her eyes as she sat in one of the dusky corners of the quiet parlour; but it was not with a desire for dozing forgetfulness. It was on the contrary because she felt too wide-eyed and wished to check the sense of seeing too many things at once. Her imagination was ridiculously active; when the door was not open it jumped out of the window. At present, with her sense that the note of change had been struck, came gradually a host of images of the things she was leaving behind her. It had been a very happy life and she had been a very fortunate person -- this was the truth that seemed to emerge most vividly. She had had the best of everything, and in a world in which the circumstances of so many people made them unenviable it was an advantage never to have known anything unpleasant. It appeared to Isabel that the unpleasant had been even too absent from her knowledge, for she had gathered from her acquaintance with literature that it was often a source of interest and even instruction.

7. At the time this scene takes place Isabel is probably:

   a. ☐ preparing to resume her former duties after an extended vacation

   b. ☐ about to start out on a new adventure

   c. ☐ returning from a trip abroad

   d. ☐ recovering from an illness

8. Isabel is described as:

   a. ☐ dull

   b. ☐ very cautious

   c. ☐ sleepy

   d. ☐ very imaginative

9. Isabel's attitude to what is about to happen is:

   a. ☐ angry at being disturbed

   b. ☐ fearful of something new

   c. ☐ indifferent and resigned

   d. ☐ thoughtful yet eager

10. How does Isabel describe her past life?

   a. ☐ as difficult

   b. ☐ as exciting

   c. ☐ as pleasant

   d. ☐ as sad

11. Isabel regretted that she had so few unpleasant things in her life because she:

   a. ☐ felt guilty and wanted to be punished

   b. ☐ felt that it is not fair that only other people experienced unpleasant things

   c. ☐ believed unpleasant things might have taught her important lessons

   d. ☐ had no interesting stories about herself

What unfair judges fathers are to all young men! They think it right that we should be born greybeards straight away and have no touch of the tastes which youth suggests. They hold the reins to suit their own desires, the desires they have now, not those which they had years ago. If ever I have a son, I swear he shall find in me an indulgent father, I shall find means not only for discovering but also for pardoning an offense, not like my father who shows me his sentiments under cover of another man. Confound it, when he has a glass or two in him what pranks he relates of his own. Now "Draw from others," says he, "the lesson that may profit yourself." Cunning old dad: On my word he little knows into what deaf ears he pours his parable.

12. The speaker in this passage is best described as:

    a. ☐ elderly
    b. ☐ indignant
    c. ☐ sad
    d. ☐ resigned

13. The speaker's attitude towards his father is:

    a. ☐ loving
    b. ☐ patient
    c. ☐ respectful
    d. ☐ scornful

14. Which of the following opinions does the speaker express in this passage?

a. ☐ A young man should not be expected to behave like an old man.

b. ☐ Honor thy father and mother.

c. ☐ Wisdom comes with old age.

d. ☐ Young men should learn early to discipline themselves.

15. What picture does the speaker have of his father?

a. ☐ He is quick to forgive his son's pranks.

b. ☐ He understands that young men's tastes are not the same as old men's tastes.

c. ☐ He has himself done some pretty wild things.

d. ☐ He was always very proper and well-behaved.

Time completed ________________

PM 431
43-47

LEVEL II

UNIT 5

UNIT TEST

Time started _______________

I saw Eternity the other night
2 Like a great Ring of pure and endless light,
All calm, as it was bright;
4 And round beneath it, Time in hours, days, years,
Driven by the spheres,
6 Like a vast shadow mov'd.

1. The author compares Eternity to:
   - a. ☐ heaven
   - b. ☐ light
   - c. ☐ shadow
   - d. ☐ summer

2. What moves like a vast shadow?
   - a. ☐ eternity
   - b. ☐ the Ring
   - c. ☐ the spheres
   - d. ☐ time

3. Where is personification used in this poem?
   - a. ☐ line 2
   - b. ☐ lines 3 and 4
   - c. ☐ lines 5 and 6
   - d. ☐ It is not used in the poem.

4. An important feature of this poem is the use of similes to convey an impression of the:

   a. ☐ brightness of the heavens

   b. ☐ difference between eternity and time

   c. ☐ similarity of eternity to time

   d. ☐ similarity of time and light

I do not know whether I ought to bemoan or rejoice that my old friend is departed. His jests were beginning to grow obsolete, and his stories to be found out. He felt the approaches of age; and while he pretended to cling to life, you saw how slender were the ties left to bind him. Discoursing with him latterly on this subject, he expressed himself with a pettishness, which I thought unworthy of him. In our walks about his suburban retreat (as he called it) at Shacklewell, some children belonging to a school of industry had met us, and bowed and curtseyed, as he thought, in an especial manner to him. "They take me for a visiting governor," he muttered earnestly. He had a horror, which he carried to a foible, of looking like anything important and parochial. He thought that he approached nearer to that stamp daily. He had a general aversion from being treated like a grave or respectable character, and kept a wary eye upon the advances of age that should so entitle him. He herded always, while it was possible, with people younger than himself. He did not conform to the march of time, but was dragged along in the procession. His manners lagged behind his years. He was too much of the boy-man.

5. The above passage is written in a:

   a. ☐ modern style

   b. ☐ traditional style

6. The author uses:

   a. ☐ standard English

   b. ☐ idiomatic English

7. The writing is best described as:

   a. ☐ formal

   b. ☐ informal

Sometimes writers use irony in their description of characters.

> On the second landing, she passed his door. The name Terrell F. Dawkins was printed neatly on a white card under the bell. The name of the man she adored was on the white card, the name of the man who was her destiny. To be sure, Terrell didn't know her yet. Nor could he know that he was her destiny. If he even suspected, would he entertain so many young ladies in his rooms? But they would come to know each other in the natural course of time. Once, when they passed at the mailbox, and she nodded, he nodded back. Marie stared at the door. Although it was the same color as the other doors in the hall, it was the door that led to Paradise. These daydreams occupied her completely so that the emptiness of her real life went by unnoticed. The likelihood that her future would be as empty as the present did not occur to her as she stared at the door of a stranger she would never know.

8. What does the author think about his character Marie?

   a. ☐ She is a pessimistic person.

   b. ☐ She is making practical plans for the future.

   c. ☐ She is really in love and someday Terrell will love her.

   d. ☐ She is unrealistically living only in dreams.

9. Which of these phrases express the author's irony?

   a. ☐ it was the door that led to Paradise

   b. ☐ she nodded, he nodded back

   c. ☐ she stared at the door of a stranger she would never know

   d. ☐ these daydreams occupied her completely

10. What is the main feeling of the character Marie? It is:

    a. ☐ emptiness and hopelessness

    b. ☐ futility and waste

    c. ☐ love and expectation

    d. ☐ pity and tragedy

READ this passage:

> Some nights Charlie could not remember his prayers. He could only get through the first line and then have to start all over and be absolutely unable to get past it. Then he had to recognize that he could not remember and give up saying his prayers that night and try something else. On those nights he would try to remember all the animals in the world by name and then when that failed, the birds and then fishes and then countries and cities and then kinds of food and the names of all the streets he could remember in Chicago. He had the biggest memory of anyone in the world.

11. The underlined sentence should be read to suggest:

    a. ☐ an obvious tribute* to be taken literally (at face value)

    b. ☐ a touch of slightly mocking irony

    c. ☐ deep appreciation

    d. ☐ seriousness

*Tribute is praise.

There are only two kinds of Alligators, the American and the Chinese. The Chinese Alligator has never been much of a success. He is only six feet long and he is too far away. He was discovered in 1870 by Mr. Swinhoe. The excitement has sort of died down now, but in 1870 the Chinese Alligator seemed quite important, especially to Mr. Swinhoe and the people who lived on his block. The Chinese were not at all astonished at Mr. Swinhoe's find. They had met foreigners before. The Chinese call this animal the N'Go, as they have done for centuries. If you say to a Chinese, "Look here, this Alligator has teeth exactly like an Alligator and it is therefore a Chinese Alligator," he will reply, "Yes, the N'Go always has that kind of teeth and I see this N'Go has them also." There may be a comeback to that, but nobody has ever thought of it. Alligators are dumber than Crocodiles and not nearly so vicious. They will hardly ever attack you unless they are cornered, and then they will generally bite off only a hand or a foot. Personally, I have a little theory about what happens to people who disappear while hunting Alligators, but I'm going to keep it to myself. I don't want to worry you. Alligators are more sociable than you might expect. They mate in April, May, and June. Then they just lie around killing time until the next April. Alligators go "Umph, Umph, Umph!" a good deal. We do not know the exact meaning of "Umph!" It can't be anything very important.

12. Which line is an example of understatement?

    a. ☐ Alligators are dumber than Crocodiles and not nearly as vicious.

    b. ☐ There are only two kinds of Alligators, the American and the Chinese.

    c. ☐ They mate in April, May and June.

    d. ☐ They will hardly ever attack you unless they are cornered and then they will generally bit off only a hand or foot.

13. The style of the line is an understatement because it:

    a. ☐ is concise - uses few words

    b. ☐ makes it seem very important

    c. ☐ makes it seem very unimportant

    d. ☐ is verbose and exaggerated

Time completed ______________

PM 431
48-51

LEVEL II

UNIT 6

UNIT TEST

Time started ______________

He is not often a creator, but even as spectator, as "the common man," he can rise in ways his past performance would not predict. To aim at his common denominators in the name of ultimate democracy is to despise him, to perpetuate his mediocrities, and to conceive him incapable of responding to anything better than the echo of his prejudices. The "equilibrium" that is the compact to be made with this boor is inevitably static, and the trouble is not solved by sticking the adjective "dynamic" in front of it. It is not in the nature of social engineering to be creative; it must necessarily be based on what is already existent. It can measure what is or what was; it can measure cliches to the nth decimal. It cannot dream or conjure; it cannot find out from people whether they would like something new, something untried, because people cannot judge what they do not know. And they will not know until someone is damn fool enough to stick his neck out and to have faith in his intuition, his perception, and his hunches.

1. The subject of the above passage is:

   a. ☐ art

   b. ☐ religion

   c. ☐ science

   d. ☐ social institutions

2. The author's attitude is that the individual:

   a. ☐ always makes wise choices

   b. ☐ functions best as part of a group

   c. ☐ has to be told what to do

   d. ☐ needs the opportunity to make mistakes

3. Which of the following situations would the author approve of?

   a. ☐ a man going back to school when he is middle-aged

   b. ☐ a man joining a company after graduation and working there for twenty-five years

   c. ☐ a man joining the priesthood

   d. ☐ a man participating in a riot

4. "This boor" in line 7 is:

   a. ☐ artists

   b. ☐ children

   c. ☐ government leaders

   d. ☐ the common man

5. "It" in line 12 refers to:

   a. ☐ congressmen

   b. ☐ government

   c. ☐ hospitals

   d. ☐ social engineering

1 Bloody, bawdy villain!
Remorseless, treacherous, lecherous, kindless
3 villain!
O, vengeance! Why what an ass am I! This is most brave,
5 That I, the son of a dear father murdered,
Prompted to my revenge by heaven and hell
7 Must unpack my heart with words,
And fall a-cursing like a very drab,
9 A scullion! Now, whether it be
Bestial oblivion* or some craven** scruple***
11 Of thinking too precisely**** on th' event --
A thought which, quarter'd, hath but one part
13 wisdom
And ever three parts coward -- I do not know
15 Why yet I live to say 'This thing's to do,'
Sith I have cause, and will, and strength,
17 and means,
To do't.

6. The thought which the speaker refers to in lines 12 and 13 is about:

- a. ☐ his act of vengeance
- b. ☐ his cowardice
- c. ☐ his father
- d. ☐ the villain

7. From lines 4-9 you can assume that the speaker thinks that talking:

- a. ☐ is a good substitute for action
- b. ☐ is the way to express feeling
- c. ☐ prepares for action
- d. ☐ reveals cowardice

---

*Oblivion means forgetfulness.
**Craven means cowardly.
***Scruple means hesitation or doubt.
****Precisely means exactly.

P

8. By the end of his speech, you know that the speaker has decided to:

   a. ☐ continue thinking

   b. ☐ kill himself

   c. ☐ kill his father's murderer

   d. ☐ talk his problem over with a friend

9. The word "this" in line 4 refers to the speaker's:

   a. ☐ act of vengeance

   b. ☐ cowardice

   c. ☐ father's murderer

   d. ☐ talking instead of acting

10. The word "it" (in "do't") in line 18 refers to:

   a. ☐ a feeling

   b. ☐ an action

   c. ☐ a person

   d. ☐ a thought

"I don't like going into that house," thought Vronsky, "but no matter; I can't hide myself," and with that manner peculiar to him from childhood, as of a man who has nothing to be ashamed of, Vronsky got out of his sledge and went to the door. The door opened, and the hall-porter with a rug on his arm called the carriage. Vronsky, though he did not usually notice details, noticed at this moment the amazed expression with which the porter glanced at him. In the very doorway Vronsky almost ran up against Alexey Alexandrovitch. The gas jet threw its full light on the bloodless, sunken face under the black hat and on the white cravat, brilliant against the beaver of the coat. Alexey Alexandrovitch's fixed, dull eyes were fastened upon Vronsky's face. Vronsky bowed, and Alexey Alexandrovitch, chewing his lips, lifted his hand to his hat and went on. Vronsky saw him without looking round get into the carriage, pick up the rug and the opera-glass at the window and disappear. Vronsky went into the hall. His brows were scowling, and his eyes gleamed with a proud and angry light in them.

"What a position!" he thought. "If he would fight, would stand up for his honor, I could act, could express my feelings; but this weakness or baseness . . . He puts me in the position of playing false, which I never meant and never mean to do."

11. The above scene is probably taking place:

    a. ☐ in the afternoon
    b. ☐ in the evening
    c. ☐ in the morning
    d. ☐ at noon

12. Vronsky and Alexey Alexandrovitch are probably:

    a. ☐ business associates
    b. ☐ enemies
    c. ☐ friends
    d. ☐ relatives

13. The scene is probably set in:

a. ☐ ancient Greece
b. ☐ modern America
c. ☐ 19th century Russia
d. ☐ 20th century Japan

14. From Vronsky's point of view, Alexey Alexandrovitch is a:

a. ☐ coward
b. ☐ fool
c. ☐ hero
d. ☐ victim

Time completed ________________

PM 431
52-56

LEVEL II
UNIT 7
UNIT TEST

Time started ________________

The following exercises will help you with your reading comprehension skills. Two reading techniques in particular are presented in this section. The first concerns the ability to pick out the correct answer to a question stated in the negative, Your clue to such a question is usually the word "not." Note the following example.

> In 1956, Mickey Mantle of the New York Yankees had his best year in major league baseball. In that year, he won the coveted Triple Crown by leading the league in home runs, runs batted in, and batting average. Besides this, he led all American League outfielders in fielding average and stolen bases. After leading the Yankees to the pennant and a World Series victory against the Brooklyn Dodgers, Mantle was voted the most valuable player in the league.

1. Which of the following is not included in baseball's Triple Crown?

   a. ☐ highest batting average

   b. ☐ highest fielding average

   c. ☐ most runs batted in

   d. ☐ most home runs

The correct answer is b. The clue to the answer is the word "not." The passage tells you that only a, c, and d are included in the Triple Crown. From this you then know that b is not included and, therefore, must be the correct answer.

Frequently, while reading, you will come across long lists of unfamiliar names and new terms. You should not be frightened or feel overwhelmed by the length or unfamiliarity of these terms. Simply go ahead. Take each item one by one. And, above all, read carefully.

THE MICROSCOPE: It s Discovery and Use

Any device which produces an enlarged image of a small object can be called a microscope. The microscope is one of the most important devices available to the biologist because it enables him to see objects which could not be seen with the naked eye. Without the microscope, bacteria and cells would have remained invisible and their existences, possibly, unknown. On the other hand, by observing them, we have greatly advanced our knowledge and understanding of the functions and structures of all living things.

Microscopes make use of glass lenses which bend light rays and produce magnified images. The simplest kind of microscope is an ordinary magnifying glass; it is made up of a single lens. The compound microscope uses several lenses in order to increase the degree of magnification. The image produced by the first lens is magnified again by a second lens, and so on.

Although the principle of the compound microscope was known before 1600, it was not until 1670 that Anton van Leeuwenhoek, a Dutchman, perfected the instrument. Leeuwenhoek was the first to see tiny animals (protozoa) in a drop of stagnant water and to observe bacteria and blood corpuscles. Leeuwenhoek's early achievements led to the refinement of microscope construction which in turn opened vast worlds of the hitherto unseen to man.

1. The compound microscope:

   a. ☐ is a recent scientific accomplishment

   b. ☐ makes use of several lenses

   c. ☐ made possible the study of distant planets and other objects in outer space

2. Which of the following is true of the compound microscope?

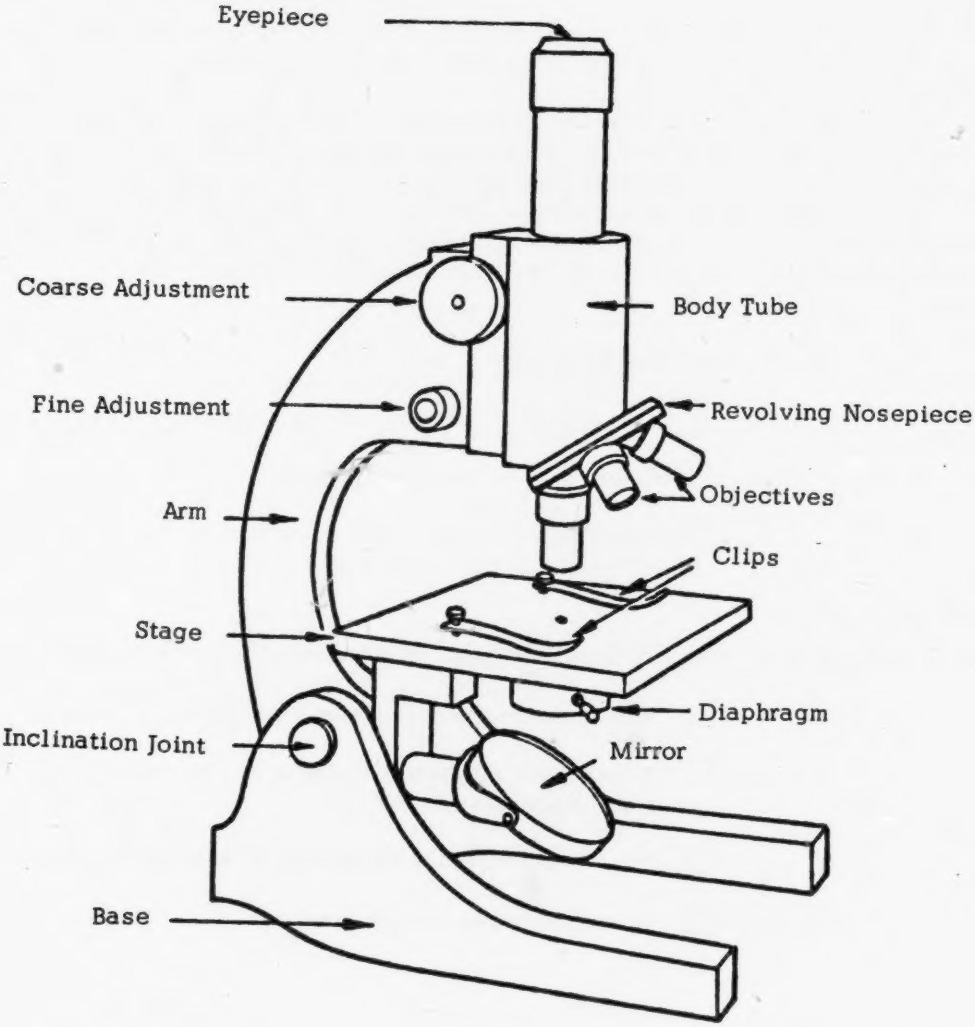
   a. ☐ It is used to study cells and bacteria.

   b. ☐ It works on the same principle as the simple magnifying glass.

   c. ☐ It uses the magnifying powers of several lenses.

   d. ☐ It was invented by Leeuwenhoek.

DIAGRAM A


Eyepiece
Coarse Adjustment
Body Tube
Fine Adjustment
Revolving Nosepiece
Objectives
Arm
Clips
Stage
Diaphragm
Inclination Joint
Mirror
Base

In order to use the compound microscope most effectively, it is necessary to know the parts of a microscope and how these parts are used. The base (see Diagram A) of the microscope is the heavy supporting structure on which it rests. The upper portion of the microscope is connected to the base by an inclination joint which allows the upper portion to be tilted. A concave mirror is provided, which may be turned in any direction in order to focus the light and reflect it up through the microscope. The diaphragm, located just above the mirror, may be regulated to control the amount of light passing from the mirror up through the microscope. The slide bearing the specimen to be observed is placed on the stage or platform and held in place by clips. The first set of lenses that magnify the image of the specimen are called the objectives. There are three objectives, each with a different degree of magnifying power. These are mounted on a revolving nosepiece. The observer views the specimen through the eyepiece or ocular. The eyepiece contains another combination of lenses to further enlarge the image of the specimen. The nosepiece and the eyepiece are connected by a body tube, a hollow barrel or cylinder through which light travels from the objectives to the observer's eye. The body tube can be raised or lowered by turning the two large wheels known as the coarse adjustment. This movement of the tube helps to focus the image of the specimen. The two smaller wheels below the coarse adjustment are used for more exact focusing. These wheels are called the fine adjustment. Finally, there is a structure connecting the base and the body tube. It is called the arm and is used as a handle for carrying the microscope.

3. Which of the following is/are not concerned with the amount of light entering the microscope?

   a. ☐ body tube

   b. ☐ diaphragm

   c. ☐ eyepiece

   d. ☐ mirror

4. Which objective will be used by the observer depends on:

   a. ☐ how much light is allowed through the diaphragm

   b. ☐ the degree of magnification desired

   c. ☐ the angle of the mirror

   d. ☐ the position of the coarse and fine adjustments

A microscope should be used in the following manner. Always place the microscope on a level table in a well-illuminated area. The arm should be toward you with the upper portion of the microscope tilted slightly at the inclination point. Rotate the nosepiece so that the low-power objective is in place. Use the coarse adjustment to move the objective into position, about one-fourth of an inch above the stage. Look into the eyepiece, keeping both eyes open. Then adjust the mirror until a well-lit circular area becomes visible through the eyepiece. Place the slide on the stage so that the specimen is centered directly below the objective. Slowly raise the body tube with the coarse adjustment until the image of the specimen becomes clear and sharp. The tube should never be lowered while the observer is looking through the eyepiece since there is the danger of striking the cover glass (the protective covering of a slide) with the objective lens. Now the fine adjustment can be used to bring the image into sharper focus. Once the specimen is in focus, the nosepiece can be rotated to a high-power objective. Then, only the fine adjustment should be used to sharpen the new image.

5. The coarse adjustment should not be used:

   a. ☐ before the specimen is on the stage

   b. ☐ under low-power magnification

   c. ☐ under high-power magnification

   d. ☐ before setting the fine adjustment

6. Which of the following is not a rule to follow in using the compound microscope?

   a. ☐ Adjust the mirror for proper illumination before putting the specimen on the stage.

   b. ☐ Focus under low-power before using high-power.

   c. ☐ Keep both eyes open while observing the specimen.

   d. ☐ While observing the specimen, lower the body tube before using the fine adjustment.

An instrument much more powerful than the compound microscope was invented in 1937. This instrument uses a stream of electrons rather than a beam of light to produce a magnified image; thus, it is called an electron microscope. Whereas the compound microscope uses lenses to bend light rays, the electron microscope uses powerful magnets which bend the stream of electrons. The image created by these electrons is then projected on a screen similar to that in a television tube. With the electron microscope, an image can be enlarged to more than 200,000 times its actual size. As you can imagine, the electron microscope has made it possible to see some of the smallest structures of matter; but even this degree of magnification is not great enough to see an atom. However, viruses (small particles of matter that may be on the borderline between living and non living material), which were too small to be seen by the compound microscope, have been photographed with the aid of an electron microscope.

7. Which of the following is not true?

   a. ☐ An electron microscope is more powerful than a compound microscope.

   b. ☐ Electrons in an electron microscope serve a purpose similar to that of light rays in a compound microscope.

   c. ☐ Magnets in an electron microscope serve a purpose similar to the lenses of a compound microscope.

   d. ☐ Viruses are smaller than atoms.

The microscope, and the improvements on it, opened and furthered our investigation into the structure and functions of cells. In the 17th century, and again in the 19th century, historic discoveries were made which formulate what is today known as the cell theory. This theory states that all living things are composed of cells. Several scientists have been especially important in advancing our knowledge of cells.

In 1665, Robert Hooke, an Englishman, discovered empty box-like structures while examining a slice of cork under a microscope. (Since cork is dead matter, the protoplasm had dried up.) The next major advance in cell theory came in 1824 when a Frenchman, Henri Dutrochet, advanced the idea that organs and tissues are composed of cells and that the functioning of the entire organism depends on these cells. In 1831, Robert Brown discovered a dense inner structure in cells; he named this the nucleus. Matthias Schleiden, a German, found that all the plants he examined were composed of cells. One year later, in 1839, Theodor Schwann, another German, found that all the animals he examined were also composed of cells. Early in this century, an American biologist named Edmund Wilson added greatly to our knowledge of cells, especially cell reproduction. In 1962 James Watson and Francis Crick were awarded the Nobel Prize for their investigations of the chemical structure of deoxyribonucleic acid (DNA), the substance in the cell nucleus that controls heredity.

Through the work of these and many other scientists, the following four points have been repeatedly confirmed and are today universally accepted:

1. All living things are composed of one or more units called cells.
2. The life functions are carried on by single cells or groups of cells.
3. Every cell is derived from an already existing cell.
4. During cell division and reproduction, the determining factors of inherited characteristics are passed on from parent to offspring.

8. MATCH the following:

1. _____ Hooke
2. _____ Brown
3. _____ Schwann
4. _____ Wilson

A. said all animals examined were composed of cells

B. said all plants examined were composed of cells

C. added to our knowledge of cell reproduction

D. saw the cells of cork

E. named the cell nucleus

F. investigated the chemical structure of DNA

9. Which of the following is/are not true of cells?

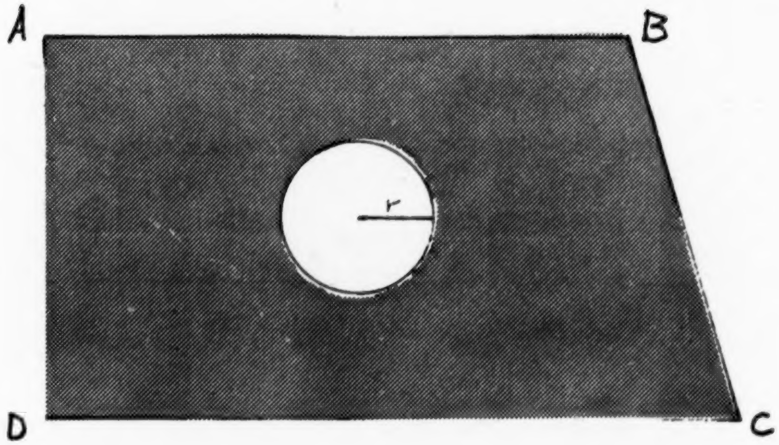
- a. ☐ cells contain a nucleus
- b. ☐ cells divide and reproduce
- c. ☐ cells contain the determining factors of inherited characteristics
- d. ☐ the life functions cannot be carried on by a single cell

Time completed ________________

LEVEL II
UNIT 8
UNIT TEST

Time started ______________

1.



In the above figure, lines AB + DC are parallel; AD is perpendicular to DC. The radius of the circle is 2 feet. Line AD = 10 feet, line AB = 15 feet, line DC = 18 feet. What is the area of the shaded part of the figure? ($\pi = 3.14$)

a. ☐ 127.72 sq.ft.

b. ☐ 135 sq.ft.

c. ☐ 177.44 sq.ft.

d. ☐ 122.44 sq.ft.

e. ☐ none of the above

2.

Time (min.)	1	2	3	4
Speed (mph)	100	400	900	1600

An experimental missile made a test flight and recorded the above data. If the relationship between time and speed continues unchanged, what will the velocity be at the end of the 9th minute?

a. ☐ 900 mph

b. ☐ 2500 mph

c. ☐ 8100 mph

d. ☐ 9000 mph

e. ☐ none of these

3. Which of the following equations has the roots (2, -3)?

a. ☐ $x^2 + x - 6 = 0$

b. ☐ $x^2 - x + 6 = 0$

c. ☐ $2x^2 + x + 6 = 0$

d. ☐ $x^2 + 2x - 6 = 0$

e. ☐ none of these

4. Solve for x: $(2x - 3)^2 - 5(2x - 5) = (2x - 2)(x - 5)$

One value of x is:

a. ☐ -1

b. ☐ 2

c. ☐ 3

d. ☐ -2

e. ☐ none of the above

Time completed ________________

PM 431
61-72

LEVEL II

UNIT 9

UNIT TEST

Time started ________________

I

INTRODUCTION

When you read about science and mathematics, you will find many general laws or rules. You should be able to use such general laws or rules in answering specific problems. These questions will test your ability to take specific numbers and use them in a general formula.

READ this example. Then use the general rule explained in the passage to answer the specific question at the end of the passage.

> An atom is made up of a nucleus with electrons revolving around it. The nucleus is made up of protons and neutrons. The atomic weight of an atom is based on the sum of the protons and neutrons since the electrons are much lighter than the protons or neutrons and contribute little to the total weight.

1. A chlorine atom has 17 electrons, 17 protons, and 18 neutrons. Its atomic weight is:

   a. ☐ 18

   b. ☐ 34

   c. ☐ 35

   d. ☐ 52

The answer is c, 35, the sum of the protons and neutrons. The general rule for finding the atomic weight was defined in the passage. You were then asked to use this general rule to calculate the atomic weight of an atom of chlorine. You must always be careful to pick out only those facts that are important to the general rule (in this case, the number of protons and neutrons) and to ignore unimportant material (in this case, the number of electrons, since electrons are unimportant in determining atomic weight). Once you can pick out and understand the general rule in the passage, you can answer any specific question.

NEWTON'S 3RD LAW OF MOTION

When you blow up a balloon and let the air escape, the balloon flies off. As the balloon contracts, the escaping air causes it to move forward. This is an example of Newton's 3rd Law of Motion which states that "every action force is accompanied by an equal and oppositely-directed reaction force." In the case of the balloon, we could call the action force the force exerted by the balloon on the air it pushes out; the reaction force is then the force exerted by the escaping air on the balloon. Two important features of action and reaction forces are:

(1) Action and reaction forces never act on the same body.

(2) The designations "action" and "reaction" are arbitrary; these forces always occur in pairs and if one member of the pair is called the "action" force the other is automatically called the "reaction" force.

In other terms, Newton's 3rd law of motion states that whenever one body exerts a force on a second body, the second body exerts an equal force, in the opposite direction, on the first body.

Some other examples of this law are:

1. The force that shoots a bullet from a gun causes the gun to recoil with the same force.
2. Jumping from a boat to a dock causes the boat to be pushed away from the dock.
3. A 20-pound box sitting on a table pushes downward on the table with a force of 20 pounds, while the table pushes upward with the same force.

Newton's 3rd law may also be expressed in terms of momentum. The momentum of an object is the product of its mass and its velocity (mv). Thus a body with a large mass that is moving slowly may have the same momentum as a body with a small mass that is moving rapidly. This can be seen in the above example of the gun and the bullet. The fired bullet and the recoiling gun have the same momentum. The bullet has a small mass and high velocity while the gun has a large mass and slow velocity. Thus the momentum of the bullet equals the momentum of the gun. In this form, Newton's 3rd law is known as the Law of Conservation of Momentum: when two or more objects interact the total momentum remains constant.

One final fact about action-reaction pairs of forces: Since action-reaction pairs do not act on the same body, they may not give a zero resultant (or "balance out"). That is why accelerated motion can occur when action and reaction forces are acting.

1. A ball with a mass of 10 lbs. is moving at a velocity of 5 mph.
   A rock with a mass of 2 lbs. is moving at a velocity of 25 mph.

   a. ☐ The momentum of the ball is greater than the momentum of the rock.

   b. ☐ The momentum of the rock is greater than the momentum of the ball.

   c. ☐ The momentum of the rock and the momentum of the ball are equal.

   d. ☐ Momentum cannot be computed from the information given.

2. Two model railroad cars of unequal mass are held tightly together with a spring compressed between them. When they are released, the cars move along the track in opposite directions and:

   a. ☐ the cars will travel equal distances

   b. ☐ the momentum of the larger car will be greater than that of the smaller car

   c. ☐ the momentums of the two cars will be equal

   d. ☐ the velocities of the two cars will be the same

3. The Law of Conservation of Momentum states that:

   a. ☐ the momentum of an object is always constant

   b. ☐ total momentum is never lost when two objects interact

   c. ☐ when two objects interact, their respective momentums remain constant

   d. ☐ when two objects interact they retain their previous masses and velocities

CENTRIPETAL AND CENTRIFUGAL FORCES

When a washing machine goes into its final "spin-dry" cycle, the wash gets flung outward to the edge of the drum that holds it. Some people say that the "centrifugal force" pulls the wash outwards. They are incorrect. Actually in operation is the inertial property of the wash; after it is set into motion, it tends to remain in motion in a straight line. It will do so until it hits the wall of the drum which prevents it from further straight-line motion. Thus, because of the drum, the wash moves with accelerated motion (since it is not moving in a straight line); that is, the wall of the drum exerts an inward-directed force on the wash which keeps it in its circular path. This inward-directed force is called the centripetal force. The word means toward the center, and that is exactly the direction of the force - toward the center of the circular path.

Where then does the term centrifugal come in? Is there a centrifugal force? Yes and no.

The answer is "yes" when we regard the centrifugal as the reaction to the centripetal force; that is, if the wall of the drum pushes the wash in toward the center of the drum, the wash exerts an equal and oppositely-directed reaction force; that is, a force directed outward from the center of the drum. It's important to note that this centrifugal force does not act on the body that has been forced into a circular path (the wash) but rather it is exerted by the wash on the drum. This is the same as the outward force you feel on your hand when you whirl a rock tied to a string in a circle.

1. As the 'spin-dry' washer spins, the wash remains in a constant circular path because:

   a. ☐ only centrifugal force is acting on the wash

   b. ☐ only centripetal force is acting on the wash

   c. ☐ the wash exerts a centrifugal force and an opposing, equal centripetal force is exerted by the drum

2. As the earth revolves around the sun, the centripetal force acting on the earth:

   a. ☐ is the attractive force of the sun

   b. ☐ is the inertial property of the earth

   c. ☐ tends to keep the earth in straight-line motion

3. A boy is whirling a rock on a string in a circular path at a constant speed. Which of the following is not true?

   a. ☐ Centrifugal force is being exerted by the rock.

   b. ☐ Centripetal force is being exerted by the string.

   c. ☐ If the string breaks, the centripetal will be greater than the centrifugal force.

   d. ☐ The rock is moving with accelerated motion.

4. The inertia of a body in circular motion:

   a. ☐ accounts for the accelerated motion of the body

   b. ☐ accounts for the centrifugal force of the body

   c. ☐ accounts for the centripetal force on the body

   d. ☐ keeps the body in its circular path

II

INTRODUCTION

The following exercises will help you with your reading. First you will be asked to read a passage, then you will be given questions that cannot be answered directly from the passage. In other words, the questions will often require you to extend the knowledge you have gained from your reading.

Always read the question carefully and make sure that you understand what the question is asking. Then look at the passage again and find facts that relate to the question. With a little thinking on your part, these facts will lead you to the answer.

READ this example. Then READ the question below and follow the steps above in choosing the best answer.

> The cerebellum, found in the brain of vertebrates, controls the coordination of the skeletal muscles. The cerebellum has no control over the involuntary muscles, and consciousness is not experienced in this part of the brain. Damage to the cerebellum of man causes defects in muscular movement. The muscles no longer have a smooth, sweeping, and continuous movement. Rather the muscles operate jerkily and in an uncoordinated manner. In some cases, such damage may also affect the strength of the muscles.

1. Damage to the cerebellum would most likely affect a man's ability to:

    a. ☐ see a movie

    b. ☐ hear effectively

    c. ☐ play baseball

    d. ☐ remember experiences

The answer is c. Playing baseball is not mentioned in the passage. But you know from the passage that the cerebellum governs the coordination of the skeletal muscles. These muscles are important in playing baseball, but not in hearing, seeing, or remembering. Thus, from the facts given in the passage, we can arrive at a correct answer, even though it is not answered directly in the passage.

GRAVITY

What we call weight is actually the result of the gravitational force that the earth exerts on bodies that are on or near its surface. When no gravitational force is exerted on a body, it has no weight. This is the case when a body is far removed from any other, as in outer space.

The weight of a body is measured with a scale. Such a scale in fact measures the gravitational force exerted on the body. When a person stands on the platform of a scale, the gravitational attraction of the earth pulls on him, forcing the platform to move downward. The downward movement of the platform represents the person's weight and is usually indicated by the movement of a balancing arm or a needle. The greater the downward movement of the platform, the greater the person's weight.

The gravitational attraction between two bodies depends on the mass of each. Thus, if the mass of either is reduced, the gravitational force is lessened. If a person were weighed on a heavenly body that had less mass than the earth, his weight would be lower. When an astronaut stands on the moon, his weight will be one sixth of his weight on the earth because the mass of the moon is one sixth of that of the earth.

It is the gravitational force exerted on a body that causes it to fall when it is above the earth and not supported. That is, a body falls because of its weight.

You would expect bodies with different weights to fall at different speeds. For example, you would expect a truck to fall much more rapidly than a bicycle. But, in fact, if two bodies are dropped from the same height, they will fall at the same speed, regardless of their mass. There are exceptions to this rule: actually a feather will fall much more slowly than a brick. But if it were not for air resistance they would fall at the same speed.

As a body falls, its speed increases; that is, it accelerates. The greater the height from which a body falls, the more time it has to accelerate and, consequently, the greater its speed at the time of landing. But, the rate at which the speed increases -- that is, the acceleration -- does not depend on the height from which the body falls. All bodies have the same acceleration when falling, regardless of their mass or the distance through which they fall. The speed of a body increases by 32 feet per second for each second that it falls. Thus we say that the acceleration is 32 feet per second per second.

1. A rock with a mass of 2 kilograms (kg.) and a rock with a mass of 10 kg. are dropped at the same time from the top of a building. If we disregard the effect of air resistance:

   a. ☐ the 2 kg. rock will reach the ground first
   b. ☐ the 10 kg. rock will reach the ground first
   c. ☐ both will reach the ground at the same time
   d. ☐ it is impossible to say what will happen

2. A 2 kg. rock is dropped from a height of 20 feet. A 10 kg. rock is dropped from a height of 15 feet. Which of the following is not true?

   a. ☐ both will accelerate at the same rate
   b. ☐ both will have the same velocity when they reach the ground
   c. ☐ the 10 kg. rock will accelerate at a rate of 32 feet per second per second
   d. ☐ the 10 kg. rock will reach the ground first

3. As a body moves away from the earth:

   a. ☐ its weight decreases
   b. ☐ its weight increases
   c. ☐ its mass decreases
   d. ☐ its mass increases

4. A 100 kg. ball stands 2 feet from a 10 kg. ball. A 50 kg. ball stands 2 feet from a 5 kg. ball. The gravitational force between the first two balls:

a. ☐ is less than that between the second two balls

b. ☐ is more than that between the second two balls

c. ☐ is the same as that between the second two balls

d. ☐ does not exist because only the earth has gravity

ELECTROMAGNETISM

In 1819, a Danish physicist named Oersted discovered that there is always a magnetic field set up around every wire through which an electric current is flowing. This field can be used to produce the magnetic effects of a permanent magnet. For instance, if a current is run through a coil of wire (see Figure A), p. 155, a magnetic field will be produced such that one end of the coil will act like a north pole while the opposite end will act like a south pole. The coil then has the characteristics of a bar magnet. In fact, an ordinary bar of steel can be made into a magnet simply by placing it inside the magnetized coil.

Such coils are also used to produce electromagnets. If a bar of soft iron is placed inside a magnetized coil, it, like the steel, will become highly magnetized. However, whereas the steel retains its magnetism even when the current in the coil is turned off, the soft iron loses its magnetism as soon as the current ceases to flow through the coil. The electromagnet has certain advantages over the permanent magnet precisely because it has this ability to become magnetized and demagnetized as the current in the coil is turned on and off.

This ability is usefully employed in the electric bell (see Figure B). When the button is pressed down, a current flows through a horseshoe electromagnet, thus producing a magnetic field. The electromagnet can then attract the iron armature. As the armature moves toward the magnet, it strikes the gong, while at the same time breaking the current. When this happens the electromagnet loses its magnetism and releases the armature. The armature then springs back to its original position, the current is completed once again, the electromagnet becomes magnetized, and the process begins anew. As long as the button is depressed, the gong in the bell will ring continuously. Electromagnets are similarly used in telegraph sounders, telephone receivers, and generators.

The strength of an electromagnet depends upon the number of turns in the coil, the amount of current in the coil, and the permeability of the core material. Of two electromagnets made with the same number of turns, the one with the more permeable core material will have a stronger magnetic effect. The more permeable the core material is, the longer will the magnetic effect last after the current is turned off.

The strength of an electromagnet also varies directly with the number of turns in the coil. Imagine two electromagnets, both made with the same core material, one of which has twice as many turns in its coil as the other. The electromagnet with the greater number of turns will have twice the magnetic effect of the other magnet.

Similarly, the strength of an electromagnet varies in direct proportion to the amount of current passing through the coil of the magnet. For example, if the current is doubled, the strength of the electromagnet is also doubled. That is, the greater the number of turns, the greater the current; and the more permeable the material, the stronger the electromagnet will be.

1. From the passage, it can be inferred that:

   a. ☐ an electric current flows more easily through a coil than through a straight wire

   b. ☐ steel is more permeable than soft iron

   c. ☐ soft iron is more permeable than steel

   d. ☐ soft iron bars make good permanent magnets

2. Two bars with equal permeability are wrapped in a wire attached to one electrical source. The wire is turned around Bar A 10 times and around Bar B 5 times. Bar A:

   a. ☐ has one half the magnetic strength of Bar B

   b. ☐ has 10 times the magnetic strength of Bar B

   c. ☐ has twice the magnetic strength of Bar B

   d. ☐ is equal in magnetic strength to Bar B

3. If steel were used as the core material in the magnet in the bell:

   a. ☐ the bell would make no sound

   b. ☐ the bell would produce a current but no magnet field

   c. ☐ the bell would ring once and only once

   d. ☐ the bell would work as described in the passage

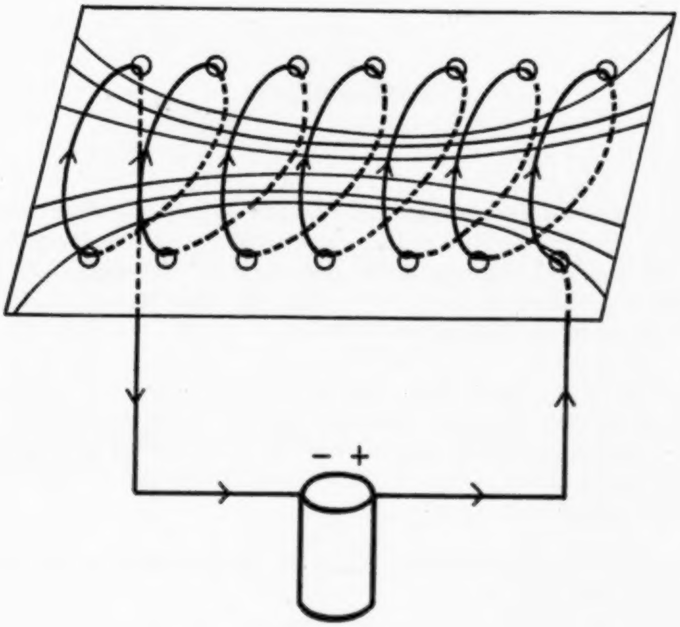


FIGURE A

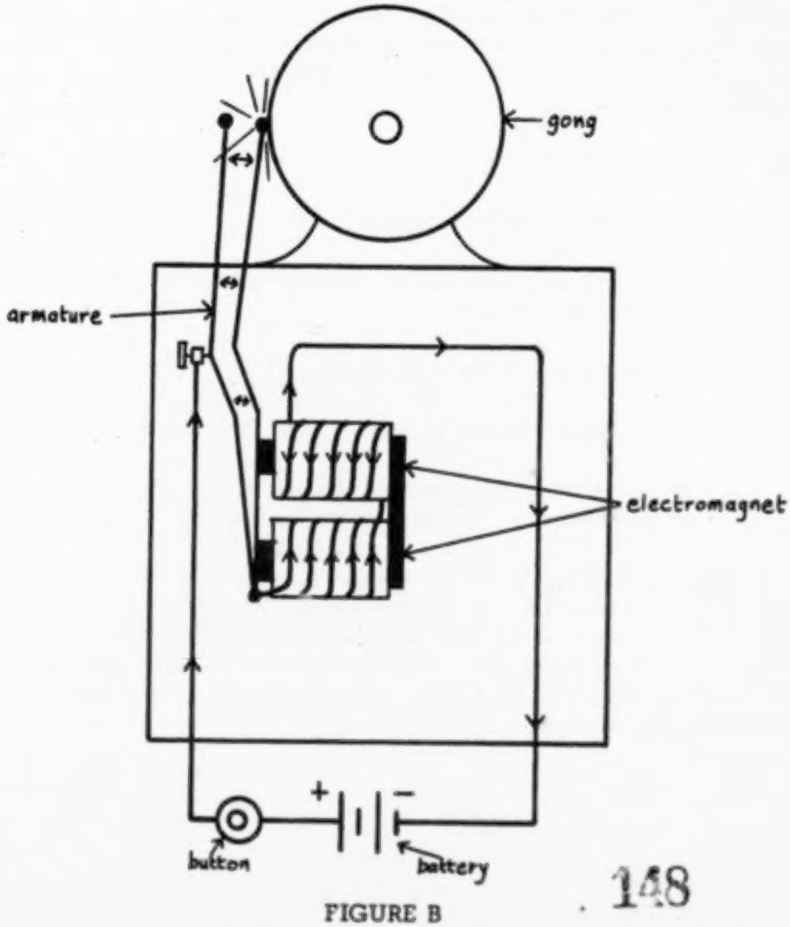

gong
armature
electromagnet
+
–
button
battery

FIGURE B

III

INTRODUCTION

The following exercises will help you to have a better understanding of what you read. Whenever you read, especially scientific material, you may come across terms that are unfamiliar to you. However, in most cases, a careful reading of the text around the term (the context) will give you the meaning of the unfamiliar term.

There are certain clues that often appear and that may help you to discover the meanings of such words (or terms). The unfamiliar word or its meaning is often preceded or followed by is or are or are called or are known as. Finding these words or phrases is your clue to finding the meaning of the term.

READ this example. Then look for clues to the meaning of the unfamiliar term in the question below.

> We know from our experience that whenever we try to slide one body over another, there is a resistance to that motion. This resistance is called friction. Frequently, grease or oil are used to reduce the friction between surfaces. Man has tried for ages to eliminate friction, but his efforts have never been completely successful.

1. Friction can be described as:

   a. ☐ any resistance to motion

   b. ☐ resistance to motion of bodies due to contact with other materials

   c. ☐ sliding one body over another

   d. ☐ the force needed to stop a body in motion

The answer is b. You can see that friction is defined for you in the passage. In the second sentence of the passage, the words "is called" are your clues.

Notice that the definition of friction given in answer b is not the same word-for-word definition given in sentence 1 of the passage. It is often possible (as we say here) to define a word in several different ways. However, the meaning of the definition remains the same even though the wording may be changed. In answering questions of this kind, do not always expect the answer to be worded exactly as it was in the passage.

HEAT ENGINES

A heat engine is a device which changes heat energy into mechanical energy. There are two types of heat engines. The first type is the external combustion engine and the second is the internal combustion engine. The basic difference between the two is that in the external combustion engine, fuel is burned outside the engine, while in the internal combustion engine, the fuel is burned inside the engine. The steam engine is an example of the external combustion engine. The four-cycle gasoline and diesel engines are the primary examples of internal combustion engines.

The four-cycle gasoline engine is used mostly in airplanes and automobiles. Its operational principle is quite simple (see drawing, p. 159): the piston must be made to move up and down in a constant rhythm; this proceeds automatically once the engine has been started. In an automobile, the engine is put into motion by the electric starter or ignition. The engine itself works in four continuous cycles or piston strokes. In the first, or intake stroke, (see A), the piston moves downward as the intake valve opens, admitting a mixture of fuel and air into the cylinder. During the compression stroke, (see B), the piston moves upward, compressing the gasoline-air mixture. At this point, (see C), an electric spark is emitted from the spark plug, igniting the fuel and causing a small explosion. The resulting force of the hot expanding gases pushes the piston down. This is the third or power stroke. The downward force of the piston works through a connecting piston rod and crankshaft to turn a flywheel. It is at this point, when the flywheel turns, that heat energy is converted into mechanical energy. The turning of the flywheel then forces the piston upward again through the final, or exhaust, stroke (see D). The exhaust valve opens and the burned gases are forced out of the cylinder. The cycle then begins over again.

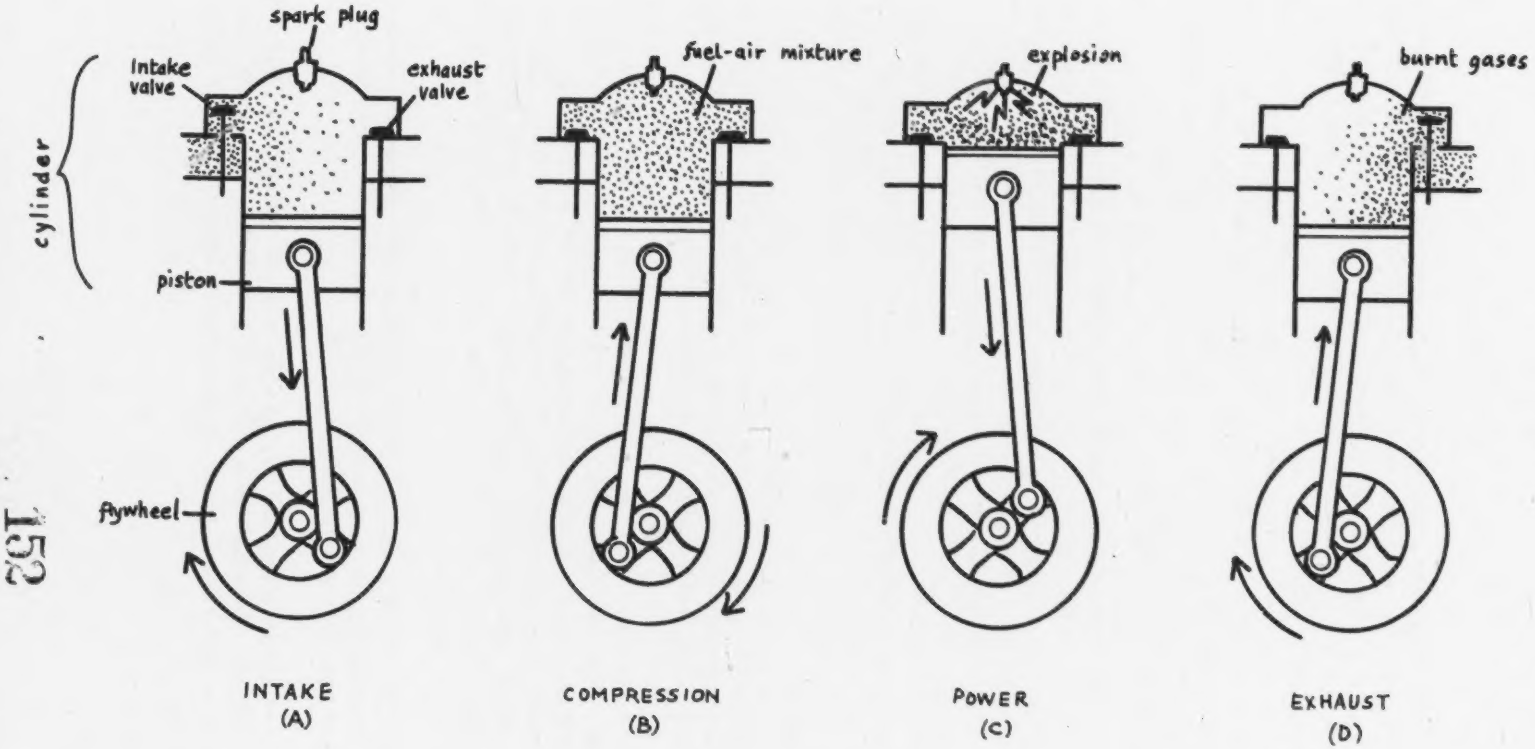
The diesel engine operates in a manner comparable to the gasoline engine, but there are several differences. In the intake stroke, air alone is admitted. During the compression stroke, the air is compressed until its temperature rises above 1000° F. At this point, fuel is sprayed into the cylinder. The contact of the droplets of fuel with the compressed air causes the necessary explosion and expansion of gases. Thus in the diesel engine no spark plug is needed. The power and exhaust strokes are the same as in the gasoline engine. Generally, this type of engine is more efficient than the gasoline engine.

1. The gasoline engine converts heat energy into mechanical energy:
   - a. ☐ during the compression stroke
   - b. ☐ during the exhaust stroke
   - c. ☐ during the intake stroke
   - d. ☐ during the power stroke

2. An electric starter:
   - a. ☐ ignites each time the piston moves upward
   - b. ☐ ignites once, after which the engine continues automatically
   - c. ☐ operates the intake and exhaust valves
   - d. ☐ produces the correct mixture of gas and air

3. The diesel engine:
   - a. ☐ admits air and fuel during the intake stroke
   - b. ☐ is less efficient than the gasoline engine
   - c. ☐ uses air only
   - d. ☐ uses both air and fuel but no spark plug

4. The heat engine:
   - a. ☐ converts work into heat energy
   - b. ☐ is always an external combustion engine
   - c. ☐ is always an internal combustion engine
   - d. ☐ can be either an internal or external combustion engine


spark plug
Intake valve
exhaust valve
cylinder
piston
flywheel
fuel-air mixture
explosion
burnt gases
INTAKE
(A)
COMPRESSION
(B)
POWER
(C)
EXHAUST
(D)

BUOYANCY

If we place a body, let's say a box, in a container that holds a fluid (gas or liquid), either one of three things may happen: the box may sink to the bottom of the container; it may submerge but not sink to the bottom, or it may float. In any case, it will displace some of the fluid in the container.

Imagine a box that is completely submerged in a container of water, but that has not sunk to the bottom of the container. Note that if the container were filled to the brim, as much water as the box displaced would spill over the top of the container.

Let us imagine that this displaced fluid is also shaped like a box. (In reality, it has no shape of its own.) If we could observe this "box" of fluid before it was displaced, we would see that it was at rest, neither rising nor sinking in the surrounding fluid. Yet, the "box" of fluid has weight, which should cause it to sink, because weight is a downward force. Since the "box" of fluid is not sinking, we must conclude that there is an upward force exerted on it that exactly counterbalances its weight. (We know that the upward force is not greater than the weight of the box of fluid, because, if that were the case, the box would rise.) In fact, such a force is exerted by the surrounding fluid. It is called a buoyant force.

When the real box displaces the "box" of fluid, a buoyant force is exerted on the real box instead of on the "box" of fluid. The buoyant force is equal to the weight of the displaced fluid.

Since the real box did not sink, it must have the same weight as the displaced "box" of fluid. But, if the real box were heavier than the "box" of fluid, it would sink because the upward buoyant force would be less than the downward force of the real box's weight. Conversely, if the real box were lighter than the "box" of fluid, it would float, because the upward force would be greater than the downward force of the real box's weight.

Although the real box and the "box" of fluid have the same volume, they do not necessarily have the same weight; the real box may have more or less mass than the box of fluid.

The amount of mass that a body has for a given volume is called its density. Different kinds of matter have different densities. In general, solids have greater densities than liquids, which in turn have greater densities than gases.

If the real box is more dense than the "box" of fluid, it has more mass and it weighs more. In this case, it will sink. If the real box is less dense than the "box" of fluid, it has less mass and it weighs less. In this case, it will float.

1. If a box is submerged in a liquid such that the liquid just covers the top of the box:

   a. ☐ the box has the same density as the displaced liquid

   b. ☐ the box is less dense than the liquid

   c. ☐ the box is more dense than the liquid

   d. ☐ the weight of the box is greater than the buoyant force of the liquid

2. Buoyant force is best described as:

   a. ☐ the density of a fluid

   b. ☐ the force of gravity on a fluid

   c. ☐ the upward force exerted by a fluid

   d. ☐ the weight of a fluid

3. A balloon is released and rises into the air. The gas inside the balloon is:

   a. ☐ as dense as the air

   b. ☐ displaced by the air

   c. ☐ less dense than air

   d. ☐ more dense than air

IV

INTRODUCTION

The most basic skill in reading comprehension is the ability to find the answer to a question within the passage. This is the case where the question is answered directly in the reading passage. The skill involved here is one of understanding the question and of locating the answer in the passage.

READ this passage. Then read the question and find the answer in the passage.

> On any professional football team it is necessary to have both a good line and a good backfield. However, the emphasis has changed in the last few years. Twenty years ago, a coach looked for a strong running-back and a big line. Today, the coaches look for a fast line and most especially for an effective passer. A pro-football team simply cannot win today without a strong passer. This is why good quarterbacks are so valuable and are such an essential part of any football team.

1. The most important part of a professional football team today is:

   a. ☐ a big line

   b. ☐ a fast line

   c. ☐ a good passer

   d. ☐ a strong running-back

The answer is c. The answer is found in the passage in lines 5 - 7. Answering questions of this kind involves your ability to pick out the important facts in the passage. If you can do this, you can answer all questions of this kind.

REFLECTION OF SOUND WAVES

When a sound wave strikes a hard surface, it is reflected. This phenomenon is similar to the reflection of light from a mirror. Echoes are examples of the reflection of sound waves.

Sound wave reflections can be utilized several ways. A device called a fathometer uses sound wave reflections to measure the depth of the ocean. Waves sent from the surface bounce off the bottom and return to the surface. The time that it takes the wave to make the round trip is then measured. The speed of sound waves in water is known. Thus, knowing these two quantities, it is then easy to compute the distance which the wave has travelled in the water. Half of this distance is the depth of the water.

In a large room or auditorium, sound waves are reflected from the walls, ceiling, and floor many times over. This can have one of two effects. If the waves meet properly after reflection, the loudness and force of the sound will be increased. However, under other circumstances, the waves and, therefore, the sound, can become jumbled, and a speaker's words become difficult to understand. The process whereby waves are reflected repeatedly from several directions is called reverberation.

Another effect caused by sound waves is known as forced vibration. If a tuning fork which is vibrating softly is touched to a table, a much louder sound is produced. This is because the contact between the fork and the table has started the table vibrating at the same frequency as the fork. The louder sound thus produced is that of the waves emitted from the vibrating table.

If a vibrating tuning fork is placed near another tuning fork of the same frequency of vibration, the second fork will also begin to vibrate. This process, whereby a still object is set in motion by another object through the emission of sound waves, is called sympathetic vibration. The sound emitted by the two forks vibrating together will be greater than the sound made by one fork alone. This is because the direct sound waves from the first fork have been reinforced by the reflections of those waves off the second fork. This reinforcement of direct sound waves by reflected waves is called resonance.

1. Bats are able to locate objects by emitting high-frequency sound waves and listening to the echoes from the objects. This is an example of:

   a. ☐ reflection of sound waves

   b. ☐ resonance

   c. ☐ reverberation

   d. ☐ sympathetic vibration

2. When the announcer spoke into the loud speaker system at the baseball stadium, his voice seemed to bounce around the stadium. This is a result of:

   a. ☐ forced vibration

   b. ☐ resonance

   c. ☐ reverberation

   d. ☐ sympathetic vibration

3. Which of the following is caused by the ability of sound waves to be reflected ?

   a. ☐ forced vibration

   b. ☐ resonance

   c. ☐ sympathetic vibration

   d. ☐ the sound made by striking a tuning fork

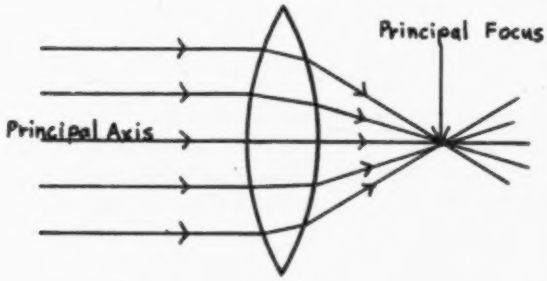

Principal Focus
Principal Axis

FIGURE A Convex Lens

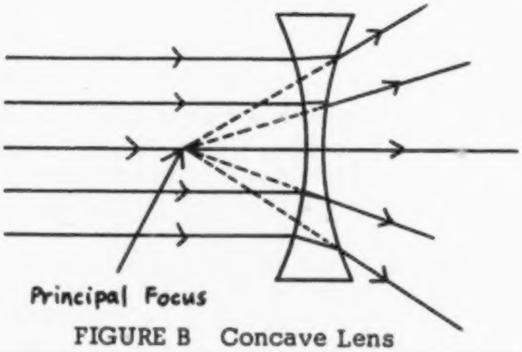

Principal Focus

FIGURE B Concave Lens

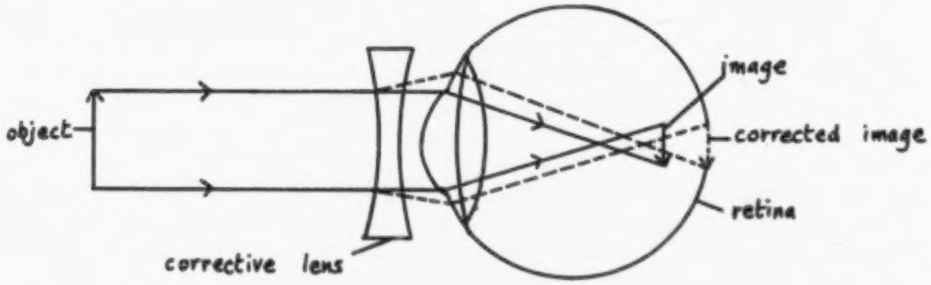


image
object
corrected image
retina
corrective lens

FIGURE C

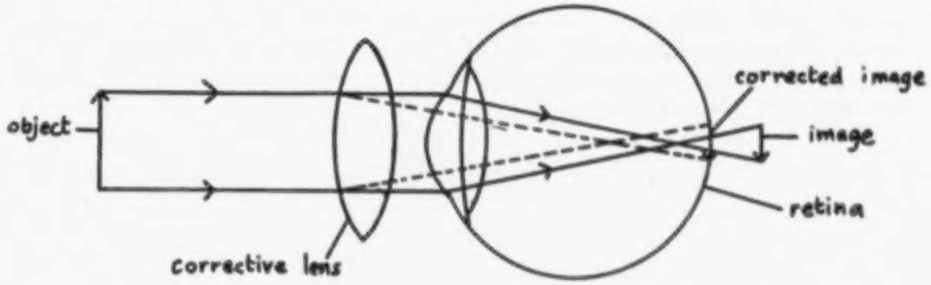

corrected image
object
image
retina
corrective lens

FIGURE D

LENSES

The lens is one of the most useful instruments which utilize the refraction of light. A lens usually consists of some transparent material, often glass, having a polished, curved surface. Lenses are used widely in telescopes, cameras, microscopes, and movie projectors, and they also form an essential part of the human eye.

See drawings on page 165.

There are two general types of lenses. First, there is the convex or converging lens (see Figure A); the other is the concave or diverging lens (see Figure B). If rays of light enter the convex lens parallel to the principal axis, they are refracted in such a way as to meet at one point, the principal focus, on the principal axis (Figure A). The rays converge at the principal focus point. The concave lens acts in the opposite manner. That is, as parallel rays enter a concave lens they diverge. Thus they do not meet at one central point. To find the principal focus of a concave lens it is necessary to extend the refracted rays back through the lens to a central point on the side of the lens where the light rays first entered (see Figure B - dotted lines). It can be seen from the drawing that the light rays from a concave lens do not actually meet at the principal focus point. Thus this point is called a virtual focus. In the convex lens on the other hand, the rays actually do converge on a single point. Thus, here the principal focus is a real focus.

One important use of the convex and concave lenses, with their respective abilities to converge and diverge light, is in eye glasses. A nearsighted person cannot see distant objects clearly. This is because the distance between the lens and the retina of the eye is too long. In the normal eye, an object can be seen clearly only when its image is focused on the retina. For a nearsighted person, the image of distant objects comes to focus in front of the retina (see Figure C - solid lines). If a concave lens is placed in front of the eye, it will diverge the light rays enough so that the image will be focused on the retina (Figure C - dotted lines).

In the farsighted person, the problem is just the opposite. The distance between the lens and the retina of the eye is too short and, therefore, images of near objects come to focus behind the retina (see Figure D - solid lines). However, when a convex lens is placed in front of the eye, the rays are converged, thus bringing the image into focus on the retina, where it belongs (Figure D - dotted lines). Thus the diverging and converging qualities of concave and convex lenses are essential in curing common eye defects.

1. A convex lens can best be described as:

   a. ☐ a converging lens used to correct nearsightedness

   b. ☐ a converging lens with a real principal focus

   c. ☐ a converging lens with a virtual principal focus

   d. ☐ a diverging lens used to correct farsightedness

2. A virtual focus:

   a. ☐ is an imaginary focus point formed on the side of a concave lens where the light rays diverge

   b. ☐ is an imaginary focus point formed on the side of a concave lens where the light rays first strike the lens

   c. ☐ is the point where the light rays converge after passing through a concave lens

   d. ☐ is the principal focus of the convex lens

3. According to diagram C, the human eye refracts light in much the same manner as:

   a. ☐ a combination of convex and concave lenses

   b. ☐ a concave lens

   c. ☐ a convex lens

   d. ☐ neither a convex nor a concave lens

4. Nearsightedness:

   a. ☐ can be corrected by a convex lens

   b. ☐ is an inability to see close objects clearly

   c. ☐ occurs when the image is focused behind the retina

   d. ☐ occurs when the image is focused in front of the retina

5. Which of the following is not true of convex and concave lenses?

a. ☐ One corrects nearsightedness while the other corrects farsightedness.

b. ☐ One diverges light while the other converges it.

c. ☐ One has a real principal focus while the other has a virtual principal focus.

d. ☐ One refracts light while the other reflects it.

Time completed ________________

LEVEL II

UNIT 10

UNIT TEST

Time started ______________

PART I

The nucleus of an atom consists of particles called nucleons. There are two types of nucleons: protons and neutrons. The number of nucleons in a nucleus is called the mass number. The number of protons in a nucleus is called the atomic number; each different element has a different atomic number associated with it.

All nuclei (plural of nucleus) consisting of more than one nucleon exhibit a very important property: the total mass of the nucleus is less than the sum of the masses of the individual nucleons. What happens to the missing mass in a nucleus? The answer to this question is related to the answer to another question: What holds a nucleus together? We recall that a nucleus consists only of positively charged and neutral particles. No nucleus containing two or more protons should hold together, since the protons, having like charges, should repel one another. Thus, there must be a force, stronger than the electrostatic repulsion between protons, holding the nucleus together. When you try to push two protons together, they repel each other until you get them very close together; suddenly, they rush together giving off a burst of energy; the nuclear force now holds them together. When we weigh these two bound-together protons, we find that they weigh less together than they did separately. However, the loss of mass (or weight) can now be understood; the energy given off when the protons came together is exactly equal to the mass lost times the speed of light squared. Thus, the mass that has been lost has been converted into energy exactly according to the $E=mc^2$ formula that arises from the Special Theory of Relativity. The energy given off when the nucleons come together to form a nucleus is called the binding energy of the nucleus. If you wish to break a nucleus apart into its constituent nucleons, you must use a force equal to the binding energy of the nucleus.

Much of our present knowledge of the nucleus has come about because of a phenomenon known as radioactivity. This phenomenon was first discovered by Henri Becquerel in 1896, who found that the element Uranium gives off powerful invisible radiations, which can expose photographic plates, even though the plates are shielded from visible light. Later, other elements were found to emit invisible radiations from their nuclei; these elements are called radioactive. The radiations given off by radioactive elements were found to consist of three components; these were called alpha, beta, and gamma rays. The alpha rays were found to be positively charged particles identical to helium nuclei (atomic number two and mass number four). The beta rays were found to be negatively charged particles, identical in every respect to electrons. Finally, the gamma rays were found to be very high energy electro-magnetic waves.

An interesting question now arises: How can negatively charged beta particles be given off from a nucleus, when nuclei only have positively charged particles and neutral particles? The answer is that a neutron can suddenly change into a proton and a beta particle. The beta particle is given off, while the proton remains in the nucleus.

The emission of alpha and beta particles change the structure of a nucleus. When an alpha particle is given off, the nucleus loses two protons and two neutrons. That means that the new nucleus that remains has an atomic number that is smaller than the original by two, while the mass number decreases by four. On the other hand, when a beta particle is emitted, the number of nucleons (and thus the mass number) remains the same. However, a neutron has been replaced by a proton so that the atomic number increases by one. Since alpha and beta decay both produce changes in the atomic number, they both result in changes from one element to another. On the other hand, gamma decay simply results in energy being removed from a nucleus.

1. Which of the following determines the mass number of an atom?

   a. ☐ the sum of the electrons and protons in the atom

   b. ☐ the sum of the numbers of electrons, protons, and neutrons in the atom

   c. ☐ the number of protons in the atom

   d. ☐ the number of nucleons in the atom

2. The term, nucleon, refers to:

   a. ☐ any atomic particle, including electrons, neutrons, and protons

   b. ☐ a neutron or an electron

   c. ☐ both neutrons and protons

   d. ☐ neutrons only

3. How is the mass number of an atom related to the atomic number of the atom?

   a. ☐ The mass number equals the atomic number.

   b. ☐ The mass number equals the sum of the atomic number plus the number of electrons in the atom.

   c. ☐ The mass number equals the sum of the atomic number plus the number of neutrons in the atom.

   d. ☐ The mass number equals the sum of the atomic number plus the number of protons in the atom.

4. The total mass of a nucleus which consists of two protons and two neutrons bound together is:

   a. ☐ greater than the sum of the masses of two separate protons and two separate neutrons

   b. ☐ less than the sum of the masses of two separate protons and two separate neutrons

   c. ☐ the same as the sum of the masses of two separate protons and two separate neutrons

   d. ☐ impossible to determine

5. What holds a nucleus together?

   a. ☐ nuclear binding energy

   b. ☐ radioactivity

   c. ☐ the force of electrostatic attraction between protons

   d. ☐ the force of electrostatic repulsion between protons

6. When individual nucleons come together to form a nucleus:

  a. ☐ both their total mass and total energy are increased
  b. ☐ part of their total energy is changed into mass
  c. ☐ part of their total mass is changed into energy
  d. ☐ their total mass and total energy remain the same

7. The radiations given off by radioactive elements consist of:

  a. ☐ nucleons only
  b. ☐ electromagnetic waves of high energy only
  c. ☐ nucleons and electromagnetic waves only
  d. ☐ nucleons, electrons, and electromagnetic waves

8. A beta ray is emitted from a radioactive atom when:

  a. ☐ a neutral nucleons change into positively charged particles and negatively charged particles
  b. ☐ a neutral nucleons change into positive nucleons
  c. ☐ two neutral nucleons combine
  d. ☐ two oppositely charged nucleons combine

9. An atom of a radioactive element is charged into an atom of a different element:

  a. ☐ only when it emits alpha particles
  b. ☐ only when it emits beta particles
  c. ☐ only when it emits both alpha and beta particles
  d. ☐ when it emits either alpha or beta particles

10. Suppose that an atom takes part in a reaction in which the atom remains unchanged, except for the loss of two electrons from their orbit in the atom. Which of the following correctly describes what has happened?

    a. ☐ a chemical change has taken place

    b. ☐ the atom has been changed into an atom of a new element

    c. ☐ the atom has lost an alpha particle

    d. ☐ the nuclear structure of the atom has been changed

PART II

A radioactive nucleus contains an excess amount of energy. Such nuclei give off this energy simply by emitting a gamma ray; other nuclei give off their excess energy by emitting a particle or a group of particles resulting in either beta or alpha decay.

Suppose you were to take a sample of a radioactive material. Even if you could look at a single nucleus, (which is impossible), you would have no idea of when it would decay. On the other hand, the behavior of a very large number of nuclei can be predicted using the so-called "statistical law of radioactive decay." This law states that no matter how many nuclei you begin with (assuming only that it is a very large number), the time required for half the nuclei to decay into the next isotope is always the same; this time is called the half-life of the particular radioactive isotope that you are considering. In order to understand the meanings of half-life, as well as the statistical law of radioactive decay, let's consider a simple example: Suppose we have 8 billion nuclei of a particular isotope with a half-life of one year. This means that after one year has passed, you will have 4 billion nuclei of the original isotope left. (The other 4 billion nuclei will have decayed into some other isotope.) After another year, you will have 2 billion of the original nuclei left; after a third year, only 1 billion of the original nuclei remain. As long as the number of nuclei being considered is large, the half-life remains constant. Since any sample of a material contains an enormous amount of atoms (and, therefore, an enormous number of nuclei), the statistical law is very important. In actual practice, the half-life of isotopes range from fractions of a second, to millions of years.

A given element can have both stable and unstable isotopes; there are radioactive forms of elements from the lightest to the heaviest of nuceli. However, in the heaviest elements, there are no stable nuclei. This can be understood if we recall that the nuclear forces are very powerful but are very short ranged. On the other hand, the electrostatic repulsion between protons acts over long distances. When you have a large nucleus, consisting of many nucleons, the nuclear forces acting on any nucleon are due only to its very close "neighbors"; however, the electrostatic force on any proton is due to all of the protons in the nucleus. This means that in such cases, the nucleus is barely held together; once a "piece" of the nucleus breaks away, the nuclear forces let go. The energy gained by this "piece" is then taken at the expense of the mass of the original nucleus.

In 1939, a new phenomenon was discovered; certain heavy nuclei were found to "split apart" into two smaller nuclei of about equal size. This splitting was called nuclear fission and would sometimes occur spontaneously (that is, without any outside help). However, it was found that a stray neutron in some cases would greatly increase the likelihood of fission if the neutron entered the nucleus. In general, a fission results in the release of excess neutrons; each of these neutrons can in turn, produce a fission. When this occurs, we are said to have a "chain reaction." Each nuclear fission results in a release of energy. This energy, of course, is obtained at the expense of mass. If a chain reaction occurs, we can have many fissions occurring in a short period of time, resulting in a large quantity of energy.

Finally, we return to the phenomenon with which we began. That is, if we take two protons and "force" them together, they do so with an enormous release of energy. This process is called nuclear fusion.

Nuclear fusion can release much more energy for a given mass of material than nuclear fission. However, because of the ease with which a chain reaction can be obtained, fission is much easier to control.

1. The nucleus of a radioactive atom:

   ☐ a. can only emit gamma rays

   ☐ b. has too much energy, which it tends to lose

   ☐ c. is always stable

   ☐ d. is deficient in energy, which it tends to absorb whenever it can

2. The time at which the nucleus of a particular radioactive atom will change:

   ☐ a. can always be predicted

   ☐ b. can be predicted only sometimes

   ☐ c. cannot be predicted

   ☐ d. could be predicted if you could examine the nucleus directly

3. The half-life of a given radioactive isotope is

- ☐ a. half of the time it takes for all of the nuclei in a sample to change
- ☐ b. the time it takes for 25% of the nuclei in a sample to decay
- ☐ c. the time it takes for 50% of the nuclei in a sample to undergo radioactive decay
- ☐ d. unpredictable

4. The half-life of a radioactive isotope is computed by observing the changes in:

- ☐ a. an extremely large number of atoms of the isotope
- ☐ b. a small number of the atoms in the isotope
- ☐ c. one atom of the isotope
- ☐ d. the number of electrons lost or gained by the atoms of the isotope

5. An isotope of an element

- ☐ a. is always radioactive and maybe either stable or unstable
- ☐ b. is always stable and not radioactive
- ☐ c. is always unstable and may sometimes be radioactive
- ☐ d. may be either unstable and radioactive, or stable and not radioactive

6. The fact that there seem to be no stable nuclei among the heaviest elements is explained in terms of the fact that:

- ☐ a. nuclear binding forces act over a great distance than electrostatic forces of repulsion
- ☐ b. nuclear binding forces act over a shorter distance than do electrostatic forces of repulsion

☐ c. nuclear binding forces and forces of electrostatic repulsion both tend to keep nucleons apart

☐ d. nuclear binding forces donot act in cases where there are electrostatic forces of repulsion

7. The term, nuclear fission, refers to a phenomenon in which the nucleus of an atom

☐ a. breaks into two nuclei each of which is smaller than the original nucleus

☐ b. divides into two nuclei, each of which is larger than the original nucleus

☐ c. divides into two nuclei of the same size as the original nucleus

d. joins with the nucleus of another atom

8. Usually, nuclear fission is accompanied by

☐ a. an increase in total mass

☐ b. the emission of both excess neutrons and energy

☐ c. the release of energy only

☐ d. the release of excess nucleons only

9. A chain reaction is one in which:

☐ a. fission takes place very slowly

☐ b. the atoms of an element become linked together in a long chain-like molecule

☐ c. the fission of one nucleus releases neutrons which enter other nuclei and give rise to fission reactions

☐ d. the nuclei of two or more elements combine to form a larger unit

10. Nuclear fusion

☐ a. involves adding electrons to an atom

☐ b. involves "binding" together two or more nucleons

☐ c. is easier to control than the process of nuclear fission

☐ d. is the same as nuclear fission

Time completed ____________________

LEVEL III

UNIT 1

UNIT TEST

Time started ______________

IMPORTANT NOTE ABOUT TEST QUESTIONS

When you are taking tests, you must read every word in each question and in the choices you have for the answer.

Certain key words make all the difference in what a sentence means. In particular, look for these key words:

ALL - NONE - MOST - SOME

ALWAYS - NEVER - USUALLY - SOMETIMES

These words can change the meaning of a sentence. For example, read these sentences:

- All the soldiers were killed in the battle.
- None of the soldiers were killed in the battle.
- Most of the soldiers were killed in the battle.
- Some of the soldiers were killed in the battle.

- He always passed his tests.
- He never passed his tests.
- He usually passed his tests.
- He sometimes passed his tests.

Always passing a test is very different from sometimes passing a test. You can see how important it is to pay attention to these words, for they change the sentence meaning completely.

When you are answering a test question,

1. Read every word in the question carefully.
2. Read every word in the answer choices carefully.
3. Look for the KEY WORDS
4. Make sure you interpret the key words correctly.

READ this sentence:

In 1962, 10% of the married couples in America got divorced.

1. READ this question:

   What was true about marriage in America in 1962 ?

2. READ the answer choices carefully:

   a. ☐ All married people divorced in 1962.

   b. ☐ No married people divorced in 1962.

   c. ☐ Some married people divorced in 1962.

3. LOOK for the key words.

   The key word in choice a is __________.

   The key word in choice b is __________.

   The key word in choice c is __________.

4. Make sure you interpret the key words correctly.

   - If all married people had been divorced in 1962, the percentage would have been 100%.
   - If no married people had been divorced in 1962, the percentage would have been 0.
   - If some married people had been divorced in 1962, then a certain percentage of them would have been divorced.

You know that the correct answer is some because you know that only 10% were divorced.

Now READ this statement, READ the choices below, and pick out the correct answer. Be sure to follow the steps in the box above.

Although it was very cold in Miami today, the city has a hot, tropical climate.

What is true about the climate of Miami?

☐ It is always hot in Miami.

☐ It is never hot in Miami.

☐ It is usually hot in Miami.

In the exercises that follow, be on the look-out for key words. They will help you to answer some of the questions.

PART I

In one important way, state governments have an even greater influence over business than the Federal government has. The states alone have the power to create corporations.

A corporation is a business that has been given certain legal rights by a state. In the eyes of the law, a corporation can act in many ways like a person. It can make contracts, buy and sell, sue and be sued, and it may even "marry" another corporation by joining with it to form one large corporation.

A business gains certain advantages by becoming incorporated. First, it may sell shares in its ownership to the public in order to raise capital. Second, these shareholders or owners have "limited liability" for the debts of the corporation. In an unincorporated business, an owner is liable (personally responsible) for all the debts of his business. If the business owes money, the owner may have to give up his personal property to pay these debts. However, the shareholders of a corporation are responsible for debts only up to the amount each one has personally invested in the business. Furthermore, their personal property cannot be taken to pay the corporation's debts.

A business must be issued a state charter to become incorporated. This charter need not be obtained in the corporation's home state. This charter sets down all the conditions the business must comply with. By setting the conditions and rules under which a corporation may operate, states can regulate local businesses and encourage certain kinds of businesses to locate within their borders.

1. Which of the following statements about a corporation is false?

   a. ☐ It may sell shares to the public.

   b. ☐ It must be chartered by a state.

   c. ☐ Its owners have limited liability.

   d. ☐ It must be located in the state that chartered it.

2. Which of the following statements is true?

   a. ☐ The Federal government can never control business corporations in any way.

   b. ☐ Usually the states have more control over corporations than the Federal government.

   c. ☐ All states set the same rules and regulations under which corporations must operate.

3. Why is it an advantage for a business to be able to sell shares to the public?

   a. ☐ Because the public always runs a business better than just a few managers.

   b. ☐ Because the business can get more capital to operate with by selling shares.

   c. ☐ Because ownership by many people, rather than just a few, forces the corporation to offer better products.

4. You can infer from this passage that corporations were created to:

   a. ☐ make goods faster and more cheaply

   b. ☐ give states control of business

   c. ☐ protect business owners

5. How does a state's power to create corporations result in its power to regulate business?

   a. ☐ The state can dictate in what town and neighborhood the corporation must locate in.

   b. ☐ The state can lay down the requirements that any corporation must meet.

   c. ☐ The state can prevent the corporation from buying and selling and entering into contracts.

6. Corporation shareholders have limited liability. This means that:

   a. ☐ they may have to give up their personal property to help pay the corporation's debts

   b. ☐ they are personally responsible for all the debts the corporation may have

   c. ☐ they are liable only up the amounts they have put into the corporation

PART II

The United States Federal Income Tax operates on a percentage basis. The government taxes a certain percentage of each individual's income. The government does not tax a person's entire income. In other words, a person is allowed to subtract, or deduct, certain amounts from his total income. The government only collects taxes on the amount that remains after these deductions have been made, that is, on the taxable income. For example, a person is allowed to subtract $600 from his total income for personal living expenses. If a man supports a family, he is also allowed to subtract $600 from his total income for each member of his family. That is, he is granted an exemption for each person he supports. Individuals can make similar deductions from their total income for contributions to charity, for medical and business expenses, and certain other expenses specified by the government. Businesses which pay corporation income taxes can also make deductions for such expenses as improvements, costs of running the business, and so on.

Every year, all persons who earn more than $600 and all businesses must file forms with the government, stating how much they earned, what deductions they are claiming, and what their taxable income is. Since the tax system is so complicated, mistakes are often made. To correct such mistakes, and to prevent people from making false statements on their tax returns, the government examines a certain number of returns each year. The table below shows the number of tax returns that were filed, and the number that were inspected, for each year during the period from 1955 to 1960.

Year	Total Returns Filed	Total Returns Examined	Corporate Returns Examined	Individual Returns Examined
1955	66,695,000	1,790,000	147,000	1,643,000
1956	67,156,000	2,117,000	166,000	1,951,000
1957	68,896,000	2,310,000	170,000	2,140,000
1958	69,202,000	2,496,000	159,000	2,336,000
1959	68,584,000	2,595,000	173,000	2,422,000
1960	70,151,000	2,736,000	165,000	2,571,000

1. What is a tax deduction?

   a. ☐ the amount of money a person pays to the government in taxes

   b. ☐ the amount of money a person makes, before he pays any taxes

   c. ☐ the amount of money a person subtracts from his total income before figuring out how much he must pay in taxes

   d. ☐ the amount of money a person has left after he subtracts the amount spent on personal living expenses

2. A man supports his wife, his mother and one child. The exemptions he will be allowed for himself and the members of his family will amount to:

   a. ☐ $ 600

   b. ☐ $1200

   c. ☐ $1800

   d. ☐ $2400

3. A person's taxable income is:

   a. ☐ always less than his total income

   b. ☐ always more than his total income

   c. ☐ always exactly the same as his total income

   d. ☐ sometimes more, and sometimes less, than his taxable income

4. STUDY the table in the passage. Then WRITE the appropriate letter next to each of the statements below, using the following letter system:

T. The statement is true according to information provided by the table.

F. The statement is false according to information provided by the table.

I. It is impossible to tell from the information provided by the table whether the statement is true or false.

a. _____ The total number of returns filed in 1960 was 70,151,000.

b. _____ The total number of individual returns examined in 1956 was 166,000.

c. _____ The total number of individual returns examined increased yearly between 1955 and 1960.

d. _____ Most of the revenue collected by the Federal government comes from individual and corporate income taxes.

e. _____ In any given year, in this period, more individual returns than corporate returns were examined.

f. _____ Most of the individuals living in the United States file income tax returns.

PART III

By the middle of the 20th century, education in the United States had reached a critical period in its development. The school age population was increasing rapidly and local and state school systems could no longer keep up with the growing need for new schools and teachers. By the mid-1950's, the Federal government would have to accept new responsibilities in the education field as well. Congress, however, was slow in reacting to this growing need. In 1957, the Russians launched Sputnik, the first successful man-made satellite. This event forced Americans to realize the necessity for educational expansion in order to compete with Russian scientific growth. In the following year, Congress passed the National Defense Education Act. This act authorized the spending of more than $1 billion in federal grants for state educational programs during the next four years.

In 1961, President Kennedy proposed a new and greatly expanded educational aid program. He asked Congress to provide $5.6 billion over a three-year period. Unfortunately the bill did not pass. The Congress remained steadfast in its opposition until the tragedy of the President's death finally shocked Congress into positive action. Early in 1964, Congress finally accepted a new bill, providing $1.2 billion for the construction of college buildings and $1.5 billion for vocational training and student loans.

There is still great controversy, both by Congress and by the public, with regard to the desirability of federal aid to education. However, it seems obvious that as our future educational needs to continue to grow, we will see a corresponding expansion of federal aid grants.

1. Federal aid to education:

   a. ☐ has always been a part of the American system of education

   b. ☐ is an expressed power of Congress

   c. ☐ is today an accepted function of the Federal government

   d. ☐ has generally met with constant opposition

2. The need for federal aid to education grew out of:

   a. ☐ the scientific advances of Russia

   b. ☐ the growing population and the corresponding need for broadened educational facilities

   c. ☐ the refusal of state and local systems to expand educational facilities

   d. ☐ the need to exert more Congressional control over education

3. It may be inferred from the passage that the author:

   a. ☐ is opposed to federal aid to education

   b. ☐ is critical of Congressional inaction in providing federal aid to education

   c. ☐ favors local and state control of education

   d. ☐ resents Russian advances in scientific technology

4. President Kennedy:

   a. ☐ opposed federal aid to education

   b. ☐ vetoed a Congressional bill for expanded federal aid to education

   c. ☐ favored federal aid to education

   d. ☐ was successful in providing increased federal aid to education

5. The author feels that future federal aid to education is:

   a. ☐ unlikely

   b. ☐ undesirable

   c. ☐ unnecessary

   d. ☐ inevitable

Time completed ________________

PM 431
81-83

LEVEL III
UNIT 2
UNIT TEST

Time started _______________

PART I

The following passage is from a speech that was given by Speaker Z.

> The United States is becoming increasingly paternalistic. By this I mean that individualism has been dying, capitalism is dying, and more and more the government is taking over functions that used to be performed by private individuals. If we don't watch out, we will become a purely socialistic nation. We might even end up with government regulations that are as strong as those in communist nations. It is because I fear for the future of our glorious nation that I am supporting our candidate. If elected, he will restore our nation to the individualism that characterized it a century ago.
>
> He will try to put a stop to increased government interference in our economy. He will try to see to it that taxes are lowered, so that no longer will our industrious citizens have to support the less industrious ones. Elect our candidate.

1. You can infer from this passage that "paternalism" refers to a government that

   a. ☐ controls big business and carries out social legislation measures

   b. ☐ follows a policy of laissez-faire capitalism and individualism

   c. ☐ owns and operates large, basic industries, while private citizens own and operate small businesses

   d. ☐ follows a policy of anarchism and functions mainly to maintain law and order

2. According to this passage, under which system would there be most government control?

   a. ☐ anarchism

   b. ☐ capitalism

   c. ☐ communism

   d. ☐ democratic socialism

   e. ☐ individualism

3. Besides trying to elect a candidate, the speaker's purpose is to

   a. ☐ criticize capitalism

   b. ☐ define paternalism

   c. ☐ describe several "isms"

   d. ☐ recommend individualism

4. According to the passage, there is least private ownership of business under

   a. ☐ anarchism

   b. ☐ capitalism

   c. ☐ communism

   d. ☐ democratic socialism

5. As described by the speaker, a paternalist would most probably

   a. ☐ oppose legislation for a program of free government medical care for all citizens

   b. ☐ oppose legislation for increasing taxes

   c. ☐ favor legislation for such projects as public housing

   d. ☐ favor legislation for allowing monopolies to grow without restrictions

PART II

When nations enter into a reciprocal (two-way) trade agreement with other nations, each says to the others, "We will lower our tariffs if you lower yours."

One of the most effective of these agreements in recent years has been the European Common Market. The member nations have agreed to eliminate tariffs among themselves and to use the common tariff rates in their dealings with non-member countries.

Members hope that within several years, there will be complete free trade within the Common Market. They believe that this goal will promote the prosperity of all the nations involved.

1. From this passage, you can infer that the purpose of the common market is to (CHECK one):

   a. ☐ get rid of trade barriers

   b. ☐ set up obstacles to trade

   c. ☐ increase duties on imports

   d. ☐ prevent free world trade

2. You can guess that a person who favors free world trade is called a (an) (CHECK one):

   a. ☐ capitalist

   b. ☐ communist

   c. ☐ internationalist

   d. ☐ nationalist

3. Members of the Common Market are of the opinion that (CHECK one):

   a. ☐ high tariffs help the economy of any nation that sets them

   b. ☐ certain countries should not be allowed into the Common Market

   c. ☐ every member nation should try to be economically self-sufficient

   d. ☐ free trade within the common market will lead to prosperity for the nations involved

4. The passage above is probably from a book about (CHECK one):

   a. ☐ politics

   b. ☐ economics

   c. ☐ political geography

   d. ☐ anthropology

5. It is likely that the members of the Common Market will

   a. ☐ increase their exports

   b. ☐ decrease their exports

   c. ☐ increase their imports

   d. ☐ decrease their imports

   e. ☐ none of the above

PART III

Keeping peace among nations has become an increasingly difficult task. At the same time, it has become increasingly important, since the large and even some of the smaller nations have weapons that could destroy the entire world. Never before has there been such a serious threat to the life on earth.

One of the most hopeful means of keeping peace in the world today is the international organization whose member nations try to solve disputes through discussions rather than through war. Almost all the big and small nations belong to this organization.

While this organization carries on its work, other means are being used to prevent the outbreak of war. For example, various nations form alliances in order to maintain a balance of power in which the opposing groups of nations are so powerful, and so evenly matched in power, that neither dares to attack the other. This balance of power is a shaky one, and could be upset by even a small nation, if it chose to ally itself with either of the opposing forces.

Another means of preventing a world-wide disaster would be weapons disarmament.* The major powers are trying to work out an agreement whereby they would both lay aside their weapons, particularly their destructive nuclear arms. Progress is slow in this area because an international inspection agency would have to be formed. The main purpose of such an agency would be to supervise all the member nations and make sure they disarm. Total agreement among the participating nations would be absolutely necessary. Every nation would have to trust and support the supervising agency, and allow its representatives into their country.

* Disarmament means (dis-) take away (-arms) guns, bombs, etc.

1. What is the international organization that attempts to settle disputes among member nations and prevent wars?

   a. ☐ The League of Nations

   b. ☐ The United States Sentate

   c. ☐ The United Nations

   d. ☐ The Peace Corps

2. Which of the following is an example of a balance of power?

a. ☐ a military alliance consisting of every nation in the world

b. ☐ two alliances: one of all the large, powerful nations, the other of the small, weaker nations

c. ☐ an international organization that tries to prevent wars from breaking out anywhere in the world

d. ☐ two opposing groups of nations which have equal military strength

3. Why is it most important to have peace in the world today?

a. ☐ because a war could upset the existing balance of power

b. ☐ because many nations are unwilling to support any international peace-keeping organization

c. ☐ because some nations have weapons which are capable of destroying the entire world

d. ☐ because the large nations have enough power to take over the world, if they decided to do so

4. Which one of the following would be necessary for international disarmament to work?

a. ☐ all nations would have to agree to set up an agency to inspect disarmament but would have to continue to make and test weapons secretly.

b. ☐ all nations would have to accept the authority of a world agency to supervise disarmament and agreed to allow this agency to inspect their countries.

c. ☐ all nations, except the U.S. and Russia, would have to agree to accept the authority of a supervisory agency that would make sure all countries were disarming.

d. ☐ all nations would agree that a supervisory agency be set up, so long as a representative of such an agency worked only in his own country.

5. The international peace-keeping organization that is operating today is more effective than the first such organization that began after World War I. One of the main reasons for this is that

   a. ☐ after World War I, all nations were more concerned in keeping their sovereignty than they are today

   b. ☐ more nations belong to the present organization than to the first one

   c. ☐ most nations were unwilling to join the first organization because they were afraid to upset the existing balance of power

Time completed ______________

LEVEL III
UNIT 3
UNIT TEST

Time started ______________

STAGES OF LIFE

The maturation of an individual organism is often described in stages. Each stage is determined by the age span that corresponds to a physiological development or deterioration. The stages that refer to the life of a human being are:

1. Infancy - from birth to about the sixteenth month, when a child can then stand up straight all by himself.

2. Childhood - from the first year and a half through age 12 or 14. Extensive growth of the body takes place during this stage.

3. Puberty - in females, this stage occurs at about the 12th year; in males, this takes place at about the 14th year. At this time the sex organs become functional and important sex characteristics appear.

4. Adolescence - from puberty to about age 21 in females and from puberty to about age 24 in males.

5. Early maturity - from the end of adolescence to about age 35.

6. Late maturity - from age 35 to about 65.

7. Advanced age - generally, from 65 onward. This is a time in life characterized by a slowing down or termination of certain life processes and,sometimes,a condition known as senility in which there is a deterioration of the mental abilities.

1. The seven stages described above for the life cycle of a human being cover:

   a. ☐ ages one through 19

   b. ☐ ages 20 through 34

   c. ☐ ages 35 through 65

   d. ☐ birth to death

2. Which of the following describe a person who would be at the stage known as puberty?

   a. ☐ a 20 month old child

   b. ☐ a 13 year old female

   c. ☐ a 40 year old male

   d. ☐ a 50 year old female

3. An 89 year old female would be at the life stage known as:

   a. ☐ advanced age

   b. ☐ late adolescence

   c. ☐ late maturity

   d. ☐ puberty

4. Senility is found in a person whose life functions:

   a. ☐ are in the process of developing

   b. ☐ have begun to slow down

   c. ☐ have terminated

   d. ☐ none of the above

PUBERTY

The stage of life known as puberty is the stage in which major growth and development of the sex organs takes place. In the male, the primary sexual organs are: the testes produce the male gametes (sperm); the penis is the organ for transferring semen to the female; and accessory glands and ducts produce semenal fluid and convey the semen to the point where it is ejaculated.

In the female the primary sexual organs are: the ovaries produce the female gametes (ova); the uterus is the organ in which the developing embryo (fetus) gorws; and the vagina is the passageway that receives sperm from the male and then through which the fetus is born.

The primary sexual organs exist from birth; however, they are not developed to a point where they can function until puberty. For example, the female's monthly period begins at puberty. This monthly process is called menstruation. Every 28 to 30 days the female ovaries releases an egg. At the same time the uterus prepares a soft bed of tissues in which a fertilized egg can implant itself. If the egg is not fertilized, the lining will degenerate and will be sloughed off and discharged from the vagina.

Secondary sexual characteristics appear during puberty. In the male these characteristics show up as increased body hair (especially whiskers on the face); development of the body form, and deepening of the voice because of an enlargement of the larynx. Female puberty is marked by a general change in body form; for example, the structure of the pelvic region (the hips) becomes wider to allow for child bearing, and the breasts, the mammary glands (the milk producing organs) begin to develop. Also, the amount of body hair increases.

The development of primary and secondary sex characteristics is regulated by certain male and female hormones. Testosterone is the male hormone produced by the testes. This hormone is responsible for the major growth and development of the male primary and secondary sex characteristics. If the testes are removed (castration) before puberty, these secondary sex characteristics do not develop -- hair will not grow on the face, the voice will be high pitched, and the body will tend to accumulate excess layers of fat. If castration occurs after puberty, there will be less of a sex drive and the secondary sex characteristics will partially regress.

The ovaries produce the female sex hormones called estrogens. These are responsible for the formation of the mammary glands and the onset of the menstrual cycle. A second important female hormone is progesterone which controls the phase of the menstrual cycle after an egg is released from the ovary. If the egg is fertilized, progesterone plays an important role in the nourishment and early development of the embryo. If the egg is not fertilized, less progesterone is secreted.

Puberty is the stage during which the development of the sex organs and sex drive begins; however, this is a gradually developing process which continues through adolescence.

5. The changes that occur during puberty are necessary for which life function(s)?

   a. ☐ absorption
   b. ☐ digestion
   c. ☐ reproduction
   d. ☐ sensitivity

6. Which of the following are examples of secondary sex characteristics?

   a. ☐ deepening of the voice and increase of body hair
   b. ☐ onset of menstruation
   c. ☐ production of female gametes
   d. ☐ production of male gametes

7. Which of the following are examples of primary sexual organs?

   a. ☐ the breasts
   b. ☐ the larynx
   c. ☐ the ovaries, uterus, and vagina
   d. ☐ the pancreas, thyroid, and pituitary gland

8. The male hormone produced by the testes is:

a. ☐ estrogen

b. ☐ progesterone

c. ☐ testosterone

VITAMINS AND MINERALS

In addition to proteins, carbohydrates, and fats, which are nutrients, the body needs vitamins in order to maintain itself.

Vitamins are chemical compounds which serve as catalytic agents in the processes of metabolism, bone formation and maintenance, and other fundamental physiological functions. Lack of vitamins results in serious disorders and malfunctioning frequently referred to as vitamin deficiency diseases.

There are six major groups of vitamins, labeled with letters for ease of reference: A (Carotene), B Complex (Thiamin, Riboflavin, Niacin, Cogalamin, Folic Acid), C (Ascorbic Acid), D (Calciferol), E (Tocopherol), and K (Naphthoquinone).

A man who is lacking in one or more of the B vitamins will develop serious disorders of the blood. He will be more susceptible to infectious diseases, his bone formation will be impaired, and nervous disorders will result.

Lack of Vitamin A will result in night blindness (difficulty seeing in dim light); and skin, nose, and throat infections. In order to prevent these disorders, it is important to include in the diet leafy green vegetables, yellow vegetables, as well as dairy products such as eggs, whole milk, and butter. The name carotene is Latin for carrots. The B vitamins are found in the following foods: liver, lean beef, yeast, as well as in green vegetables and tomatoes.

Vitamin C is perhaps the most well known of all the vitamins. Long before we knew anything about vitamins, sailors on long voyages suffered from a vitamin C deficiency known as scurvy (characterized by bleeding gums, loose teeth, and swollen joints).

Vitamin C is found in all citrus fruits and juices derived from these fruits and in leafy green vegetables and tomatoes. Scurvy was alleviated when drinking lemon or lime juice eliminated the symptoms of this disorder. The English, whose sailors first discovered the remedy, are often called Limeys today. Vitamin D prevents rickets (bowlegs) and helps in the formation of healthy teeth. Vitamin D is produced in the body by the action of ultraviolet sunlight. Vitamin D was nicknamed the "sunshine vitamin." Small quantities of this vitamin may be obtained from liver and fish-liver oils. Another source of Vitamin D is milk that has been exposed to ultraviolet light.

Lack of Vitamin E results in sterility (inability to reproduce) in rats and scientists believe that a Vitamin E deficiency may have the same effect on humans. Wheat germ, leavy green vegetables, meat and whole grain cereals are important sources of Vitamin E.

Leafy green vegetables are a very important source of Vitamin K, an important catalyst in the synthesis of prothrombin, a protein which is necessary in the blood clotting process. Without Vitamin K, hemorrhaging can result.

In addition to vitamins, the body also requires certain minerals, such as sodium, potassium, chlorine, calcium, phosphorus, fluorine, iron, and iodine in order to function properly.

You already know that iron is an essential part of hemoglobin. Hemoglobin, in the red blood cells, carries carbon dioxide to the cells of the body. Chlorine is an element of hydrochloric acid, the substance secreted by the gastric glands in the stomach. There has been much discussion recently about adding fluorine to drinking water; fluorine is an element that makes the enamel of teeth hard and resistant to decay. Calcium and phosphorous are also necessary in the development of healthy teeth and bones. Iodine is used by one of the organs of secretion.

Usually, most of the vitamins and minerals needed by the human body can be obtained in sufficient quantity from a balanced diet.

Sometimes, however, it is necessary to take vitamin and mineral supplements (vitamin or mineral pills) because there is a greater need for a certain substance or because the body cannot adequately extract the quantity it needs from the food available.

9. The two subjects treated in the above paragraphs are:

   a. ☐ carbohydrates and fats

   b. ☐ proteins and carbohydrates

   c. ☐ vitamins and minerals

10. Which of the following statements is true?

a. ☐ Vitamins prevent all diseases.
b. ☐ Vitamins aid in the digestive process and bone formation.
c. ☐ Vitamins are catalytic agents secreted by the body.
d. ☐ Each vitamin and each mineral performs the same function.

11. Scurvy can be alleviated:

a. ☐ by eating any of the citrus fruits
b. ☐ only by eating liver
c. ☐ by eating more eggs and drinking more milk
d. ☐ by increasing the quantity of Vitamin K

12. A child who never plays outside and who doesn't drink much milk may develop:

a. ☐ anemia
b. ☐ nightblindness
c. ☐ rickets
d. ☐ scurvy

13. Which of the following foods is a source of Vitamins A, B, E, and K?

a. ☐ citrus fruits
b. ☐ leafy green vegetables
c. ☐ liver
d. ☐ yeast

14. Which of the following are examples of minerals ?

a. ☐ ascorbic acid, carotene, and tocoherol

b. ☐ calcium, iron, chlorine, and phosphorous

c. ☐ chiamin, niacin, riboflavin, and folic acid

BLOOD TYPES AND FACTORS

Karl Landsteiner discovered that there are four blood types: A, B, AB, and O. His discovery of blood types is of great importance when transfusions are necessary, that is, when blood from one person must be injected into the blood stream of another individual. Transfusions are often necessary for a person who hemorrhages after surgery and for persons with anemia. The blood type of the donor, the individual giving blood, must be compatible with the blood type of the recipient, the individual receiving the blood.

Blood types are said to be incompatible when the blood cells of one individual act as foreign bodies when introduced to the blood of another individual. Foreign bodies can cause the cells of the recipient's blood to agglutinate (lump) and to clog the microscopic vessels. Blood types which are compatible can be transfused with no danger of agglutination.

Blood type AB is compatible with all other blood types when it is a recipient; that is, AB blood can receive types A, B, AB, or O in transfusion. It is known as the "universal recipient," but it can be the donor only to type AB. Blood type O is compatible with all other blood types when it is the donor. It can be given to types A, B, AB, and O and is thus known as the "universal donor." However, type O can receive only type O. An individual with blood type A can be a donor to another individual with blood A or to an individual with blood type AB; but, type B blood can only be donated to an individual with type B or type AB, the universal recipient.

Another important consideration in determining the compatibility of a donor is and the recipient is known as Rh factor, a complex chemical substance which is found in the blood. An individual's blood is either Rh positive (Rh+) or Rh negative (Rh-). For recipients, Rh+ is compatible with Rh+ and Rh-; but Rh- is compatible only with Rh-. For example, if a transfusion of type A (Rh+) is given to an individual with type A, (Rh-) there will be a reaction in the recipient's body which will produce a substance that is incompatible with the Rh- blood. After several such transfusions, the accumulated build-up of this substance will be fatal to the recipient.

15. Which of the following statements is correct:

a. ☐ Type A blood donated to a type O recipient would be compatible

b. ☐ Type O blood donated to a type B recipient would be incompatible

c. ☐ Type O blood donated to a type AB recipient would be compatible

d. ☐ Type AB blood donated to a type A recipient would be compatible

16. Agglutination (lumping) is:

a. ☐ the process of injecting blood of one type into an individual with blood of another type

b. ☐ the result of a transfusion between compatible blood types

c. ☐ the result of a transfusion between two incompatible blood types

d. ☐ the result of giving type O blood to the universal donor

17. Blood types are said to be compatible when they:

a. ☐ agglutinate

b. ☐ clump together

c. ☐ mix together without clumping

d. ☐ all of the above

18. The Rh factor is most likely to cause death when:

a. ☐ an Rh+ receives a transfusion of Rh- blood

b. ☐ an Rh- receives a transfusion of Rh+ blood

c. ☐ an Rh- receives more than one transfusion of Rh+ blood

d. ☐ an Rh- receives a transfusion of Rh- blood

19. A person with which of the following blood types can receive blood from any other person?

a. ☐ Type A

b. ☐ Type B

c. ☐ Type AB

d. ☐ Type O

HEREDITY AND ENVIRONMENT

No two human beings are exactly alike. For example, there is no known case of people having the same finger print pattern. Even "identical" twins do not have exactly the same mental and physical characteristics. The differences between human beings has been attributed to two main factors: heredity and environment. The first factor assumes that the differences between people are due to their inherited genetic make up. The second factor assumes that these differences are due to differences in environment.

People who attribute all the differences between men to hereditary factors view man as a creature born with fixed, unchangeable characteristics and abilities. What an individual can and cannot accomplish in his life is determined by his heredity.

Some believe that a newborn child is one with a clean slate, and man is a product of environmental factors. They believe that people are formed by their upbringing, their education, and other advantages or disadvantages.

Although both of the above viewpoints contribute to our understanding of the differences between men, neither theory by itself can completely explain these differences. The truth is that a person's physical and mental characteristics are a product of interaction between heredity and environment. Biologists get into trouble when they try to divide human traits in two neat categories, the hereditary and the environmental. For example, basic intelligence is considered an inherited trait. However, Dr. Otto Klineberg has found that the I.Q.'s* of children brought up where schooling is poor improve after they have moved to a place where they get a better schooling. You can see from this example that heredity sets the stage for the interaction of a person with his environment.

The study of heredity and environment is of great interest to those who wish to improve the lot of mankind. Some biologists believe that, with further study, enough can be known about human inheritance so that people may choose mates with genes for desirable traits. This is the science of eugenics, a science which states that human characteristics can be improved by mating individuals with desirable traits. At its extreme, eugenics holds that people with undesirable traits should not be allowed to breed offspring. Other biologists believe that human beings will be improved by improvements in their environment. This is the science of Euthenics.

*I.Q. is an abbreviate for "intelligence quotient". The I.Q. is a number that is supposed to compare the basic intelligence of an individual.

20. The author of the above paragraph believes that:

a. ☐ environment determines the development of individuals

b. ☐ heredity determines the development of individuals

c. ☐ both environment and heredity determine the development of individuals

d. ☐ none of the above

21. A person's eye color:

a. ☐ can be changed by his education

b. ☐ can be changed by his environment

c. ☐ depends on where he was born

d. ☐ is inherited from his parents

22. A person's I.Q. score is affected by:

a. ☐ his education

b. ☐ where he was born

c. ☐ his genetic makeup

d. ☐ the basic characteristics he has inherited

23. A biologist who believes in improvement through eugenics would probably want to eliminate:

a. ☐ bad schools

b. ☐ undesirable traits

c. ☐ poverty

d. ☐ slums

24. Which of the following are euthenic measures for improving human beings?

a. ☐ compulsory education with more and better schools

b. ☐ learning more about inherited characteristics

c. ☐ not allowing people with undesirable traits to have offspring

d. ☐ all of the above

EVOLUTION

Many of the forms of life that existed thousands of years ago no longer exist. Many plants and animals that exist today did not exist thousands of years ago. Present forms of life are constantly undergoing change. All of the various plants and animals living today have descended from simpler organisms by means of gradual modifications that have occurred over many thousands of years. Scientists use the term evolution to refer to the total effect of the gradual changes that have occurred in plants and animals through the years.

Although scientists were aware of evolutionary change as early as 550 BC, no one could explain how these changes occurred. Charles Darwin (1809 - 1882) was one of the first scientists to formulate an accurate theory to explain evolutionary change. Darwin found that certain plants and animals were more fit to survive in their environment than others. Those that were less fit died out. For example, at one time there were three-toed and four-toed horses. Since the three-toed horses were stronger and speedier animals than the four-toed horses, they were able to escape from their enemies more rapidly. Thus, in the struggle for existence, the three-toed horse had a better chance to survive and pass on this trait to its offspring. The number of three-toed horses constantly increased while more and more of the four-toed horses died. After thousands of years the four-toed horse disappeared entirely.

To Darwin, it seemed that the natural environment selected for survival those plants and animals that slowly accumulated favorable traits. In other words, nature chose those organisms that were best equipped to obtain food, aboid enemies, and live to pass on to their offspring those traits that made them better able to survive. Darwin called this theory of evolution "natural selection."

Darwin did not know how certain plants and animals acquired the traits that made them better able to survive or how these traits were passed on to succeeding generations. However, with modern research in genetics and heredity, we are better able to answer this question. The Dutch botanist Hugo de Vries was the first person to emphasize the importance in evolution of sudden changes in the basic characteristics of an organism that made the organism differ drastically from the original ones. By experimenting with plants, de Vries found that many new forms spontaneously came into existence. If these new forms were bred again, they produced offspring like themselves.

de Vries applied the term mutation to the sudden changes that were marked by "new" characteristics of an organism. Thousands of breeding experiments with plants and animals since 1900 have proved that mutations constantly occur. With the development of the gene theory, the term mutation has come to mean a sudden change in the genes of an organism. The accumulated effect of favorable gene and chromosome changes (mutations) that have taken place in plants and animals over a long period of time has resulted in new organisms that have little resemblance to their ancestors.

25. According to the theory of evolution, plants and animals will:

a. ☐ all die out eventually

b. ☐ always remain in their present form

c. ☐ will continue to change

d. ☐ none of the above

26. Darwin formulated the theory of:

a. ☐ inheritance

b. ☐ mutation

c. ☐ natural selection

d. ☐ use and disuse

27. The four-toed horse died out, but the three-toed horse has survived because:

a. ☐ the four-toed horse was faster and stronger

b. ☐ the three-toed horse had no natural enemies

c. ☐ the three-toed horse was faster and stronger

d. ☐ three toes are better than four toes

28. Mutations are changes that occur:

a. ☐ gradually in the genes of an organism

b. ☐ suddenly in the genes of an organism

c. ☐ very rarely, if at all

Time completed ________________

PM 431
94-108

LEVEL III

UNIT 4

UNIT TEST

Time started ______________

DIRECTIONS FOR PART A.

READ CAREFULLY

In the following set of exercises, you will be asked to read several sentences, and pick out errors in the sentences. Four parts of each sentence will be underlined and numbered. Those are the parts that you should look at especially carefully. For each underlined part, DECIDE whether the word or phrase underlined is correct or incorrect in relation to the rest of the sentence. There will never be more than ONE mistake in each sentence. When you decide which numbered part of the sentence is incorrect, WRITE the number on the line to the left of the sentence. Some sentences will not have any errors. In other words, all four underlined parts of a sentence may be correct. In such cases, you should write the number 5 on the line for that question. The number 5 means "all correct."

FOLLOW these steps:

STEP 1: READ through the whole sentence to get the general meaning.

STEP 2: LOOK carefully at each of the underlined parts.

STEP 3: SELECT the part that is incorrect.

STEP 4: WRITE the number of the incorrect part on the line to the left of the question.

Here is a sample exercise:

_____ 1. Besides being the prettiest girl in the class, Jane
1 2
was also the more popular of all the girls; no one
3
ever said a bad word about her.
4

You should have written the number "3" on the line to the left of the sentence. The phrase "more popular" is incorrect. Now, suppose that the sentence above had been presented this way:

_____ 1. Besides being the prettiest girl in the class, Jane
1 2
was also the most popular of all the girls; no one
3
ever said a bad word about her.
4

If you have read the second version of the sentence carefully, you will realize that it does not have any errors in it. On the line to the left of the sentence WRITE the number that indicates all underlined parts of the sentence are correct.

You should have written the number "5" since that is the way to show, in these exercises, that the sentence is completely correct.

TURN to the next page and begin this set of exercises.

_____ 1. John sat $\underset{1}{\underline{\text{beside}}}$ Mary to discuss the film, which he thought was the $\underset{2}{\underline{\text{funniest}}}$ he had ever seen, but which Mary $\underset{3}{\underline{\text{couldn't}}}$ $\underset{3}{\underline{\text{hardly}}}$ stand because it was $\underset{4}{\underline{\text{unusually}}}$ long.

_____ 2. They $\underset{1}{\underline{\text{could not}}}$ agree $\underset{2}{\underline{\text{among}}}$ the three of them, because each one thought his plan was the $\underset{3}{\underline{\text{best}}}$; however, it turned out that any of the plans would have worked $\underset{4}{\underline{\text{well}}}$.

_____ 3. His ideas were so $\underset{1}{\underline{\text{different than}}}$ mine that we could $\underset{2}{\underline{\text{never}}}$ agree; he was $\underset{3}{\underline{\text{more sensible}}}$ than I, but I found his practical attitudes $\underset{4}{\underline{\text{frightfully}}}$ annoying

_____ 4. $\underset{1}{\underline{\text{Besides}}}$ being $\underset{2}{\underline{\text{terribly}}}$ thirsty, the men were so tired that none of them $\underset{3}{\underline{\text{couldn't}}}$ continue, even though their mission was the $\underset{4}{\underline{\text{most important}}}$ one they had ever been assigned.

_____ 5. $\underset{1}{\underline{\text{At about noon}}}$, the crowd began to move $\underset{2}{\underline{\text{slowly}}}$ $\underset{3}{\underline{\text{into}}}$ the theater, which was featuring the $\underset{4}{\underline{\text{latest}}}$ Beatle movie.

_____ 6. He looked $\underset{1}{\underline{\text{inside of}}}$ the case, searching for the $\underset{2}{\underline{\text{cheapest}}}$ watch $\underset{3}{\underline{\text{in}}}$ the store, which turned out to be a model that $\underset{4}{\underline{\text{didn't even}}}$ have a second hand.

_____ 7. He $\underset{1}{\underline{\text{suddenly}}}$ saw a wallet lying $\underset{2}{\underline{\text{on}}}$ the ground; when he picked it up, he found that it didn't contain $\underset{3}{\underline{\text{any}}}$ identification, and had only $\underset{4}{\underline{\text{around}}}$ a dollar's worth of change in it.

_____ 8. When John $\underset{1}{\underline{\text{finally}}}$ realized that he had $\underset{2}{\underline{\text{no}}}$ money, he began to wonder which of his many friends would be $\underset{3}{\underline{\text{most likely}}}$ to lend him enough $\underset{4}{\underline{\text{for to}}}$ get home.

_____ 9. Even though he was working $\underset{1}{\underline{\text{carefully}}}$, the painter knocked over a bottle of turpentine that fell $\underset{2}{\underline{\text{onto}}}$ the floor, not hurting $\underset{3}{\underline{\text{anyone}}}$, but making the $\underset{4}{\underline{\text{worst}}}$ mess he had ever seen.

_____ 10. Everyone knew that he $\underset{1}{\underline{\text{usually}}}$ dressed very $\underset{2}{\underline{\text{neatly}}}$, so we were all surprised when he walked $\underset{3}{\underline{\text{into}}}$ the room wearing a dirty shirt, and the $\underset{4}{\underline{\text{most filthiest}}}$ pants we had ever seen.

DIRECTIONS FOR PART B.

READ CAREFULLY.

This set of exercises contains groups of sentences. Certain parts of the sentences are underlined, and numbered. To the right of each of these numbered section are several ways of writing the underlined portion. You are to decide which of these choices is most correct. CHECK the box in front of your selection.

Here is a sample exercise.

CHECK the box next to the choice at the right that would best fit into the sentence below.

It was so dark out that no one could scarcely see what was in front of him.
1

1.
1. ☐ no one could scarcely
2. ☐ no one could hardly
3. ☐ no one could

You should have checked box number 3 to indicate that the best way of completing the sentence would be to say that "no one could see what was in front of him."

TURN to the next page and begin the next set of exercises.

Paragraph 1

The report was no use to the
1
committee because it did not
contain enough information.
It did not take long for the
men to realize that, beside
2
being incomplete, the report
was also faulty. This meant
that their work would be delayed
again, until a more accurate
3
report could be written. The
committeemen realized that
there was no point in complaining
4
about the delay, since the work
would have to be redone in any
case. So they agreed among
5
themselves to adjourn until
the following week.

1. 1. ☐ no use
   2. ☐ of no use

2. 1. ☐ beside
   2. ☐ besides

3. 1. ☐ more accurate
   2. ☐ most accurate
   3. ☐ more accurater
   4. ☐ most accuratest

4. 1. ☐ no point complaining
   2. ☐ no point in complaining

5. 1. ☐ among
   2. ☐ between

Paragraph 2

Carl began to sweat as he
slowly raised his gun and took
6
carefully aim. He knew that in
7
the next few moments he would be
taking the most important shot of
8
his life. If he missed the first
shot, he would not never have a
9
chance for a second one; the tiger
would be upon him before he could
pull the trigger again. While these
thoughts raced through his mind, the
crucial moment arrived. The tiger
jumped out from in behind the tree,
10
and it was Carl's skill pitted against
the speed and strength of the animal.

6. 1. ☐ slow
   2. ☐ slowly

7. 1. ☐ careful
   2. ☐ carefully

8. 1. ☐ most important
   2. ☐ more important

9. 1. ☐ never
   2. ☐ ever

10. 1. ☐ from behind
    2. ☐ from in behind
    3. ☐ out from behind
    4. ☐ out from in behind

When you have completed all of the questions in these exercises, ASK YOUR INSTRUCTOR FOR A COPY OF THE ANSWER KEY, so you can CHECK your answers.

Time completed ________________

DIRECTIONS FOR PART **C**
READ CAREFULLY

In the first set of exercises that follows, you are to READ each of the sentences and DECIDE which of the underlined parts contains an error. Then WRITE the number of the incorrect part of the sentence on the line to the left of the sentence. If all four parts of a sentence are correct, WRITE the number "5" on the line for that question.

1. _____ Marty and Paul, friends of the captain, were chosen to
1 2
be on the first-string team, even though neither of them
3
are a very good player.
4

2. _____ Each of the guys had grabbed their jacket and run,
1 2
hoping to get there in time to be able to sit in the front row.
3 4

3. _____ Although neither of us was sure that our parents' cars
1 2
would be available, we promised the girls that we would
pick them up at their houses' at 9:30.
3 4

4. _____ My sister asked me to bring her the book that she had set on
1 2
the table, but since I couldn't find it, I had to tell her that
someone must have took it when no one was in the room.
3 4

5. _____ Young children often want to do things theirselves, even
1
when the task is too complicated for them, and when someone
2 3
else's helping would make the job very easy.
4

6. _____ When the car broke down, none of us knowed how to fix it,
1 2
but we each tried our own method, until one plan turned out well.
3 4

7. _____ All of the teachers, except one, is on strike, because they
1
believe that each teacher should have the right to determine
his own teaching methods and to decide who's going to pass.
2 3 4

8. _____ Most of the candidates have spoken already, but there are still
1 2
a few who wish to rise and express his opinions.
3 4

9. _____ Its not a question of whose duty it is to go, but rather, who's
1 2 3
willing to stay here while the others are doing the actual fighting.
4

10. _____ He had given plenty of advice to my sister and me, but neither
1 2
of us had been ready to give up his own way of doing things.
3 4

DIRECTIONS FOR PART D
READ CAREFULLY

For the next set of questions, you are to READ through each passage, and then CHOOSE the best way of writing each of the underlined portions. CHECK the box next to the choice that you consider best.

Paragraph I

The $\underset{1}{\underline{\text{bosses}}}$ all got together to work out a plan that would enable the company to close down for the whole week between Christmas and New Year, without losing money. When the plan was announced to the workers, each of them $\underset{2}{\underline{\text{were extremely}}}$ pleased. The extra time off would mean that they would have ten days to $\underset{3}{\underline{\text{theirselves}}}$. Some of the workers decided to use the time to relax at home, while others $\underset{4}{\underline{\text{began}}}$ to make vacation plans. In general, the effect of the announcement of the plan was to $\underset{5}{\underline{\text{rise}}}$ the spirits of everyone in the company.

1. a. ☐ bosses
   b. ☐ boss's
   c. ☐ boss'
   d. ☐ bosses'

2. a. ☐ were extremely
   b. ☐ was extremely
   c. ☐ was extreme
   d. ☐ were extreme

3. a. ☐ theirselves
   b. ☐ themselves
   c. ☐ himself

4. a. ☐ began
   b. ☐ begun
   c. ☐ beginned

5. a. ☐ rise
   b. ☐ raise

Paragraph II

By the time that we had finished the job,
Mike and me were so tired that we had
6
only one thought in mind: to lie down
7
immediately and sleep for at least ten
hours. We soon realized that this would
be impossible, since their was no room
8
in the crowded workspace for anyone to
rest. Instead, we dragged our tired
bodies to our car, and drived home. I
9
was even more exhausted than Mike, so
I should of let him take the wheel. That
10
way, we might not have had the accident.

6. a. ☐ me
   b. ☐ I

7. a. ☐ lie
   b. ☐ lay

8. a. ☐ their
   b. ☐ there
   c. ☐ they're

9. a. ☐ drived
   b. ☐ droved
   c. ☐ drove
   d. ☐ driven

10. a. ☐ should of
    b. ☐ should have

When you have completed all of the questions in these exercises, ASK your instructor for a copy of the answer key, so you can CHECK your answers.

Time completed ______________

LEVEL III

UNIT 5

UNIT TEST

Time started _______________

PART I

READ the following sentences, and decide which of the underlined parts contains an error. Then WRITE the number of the incorrect portion on the line at the left. If all underlined parts are correct, WRITE the number "5" on the line for that question.

1. _____ While my cousin Mary was reading an essay called
1 2
"Mission Of Mercy," I decided to study for a math
3 4
test we were going to have the next day.

2. _____ "How do you ever expect to finish," I asked him, "if
1 2 3
you keep day-dreaming like that?"
4

3. _____ The stewardess couldn't understand why the French
1 2
passenger was so angry -- all she wanted to know was
3
whether he wanted something to drink on the long flight?
4

4. _____ Johnny's mother told him "to stay out of trouble," but
1 2
he still managed to break a vase, rip the sofa covering,
3 4
and dirty his clothes before she returned.

5. _____ Everyone agreed that the film by Bergman was the most
1
confusing they had ever seen; it was difficult to understand,
2 3
depressing, and morbid.
4

6. _____ The airplane was coming in for a landing__ when the pilot
1 2
asked the tower, "What's that truck doing on the runway"?
3 4

7. _____ The new priest, Father Wilkins, insisted that his followers
1 2 3
stop believing in false Gods.
4

8. _____ During the first ten years of his life, he lived in Rochester,
1 2
New York: after that, his family moved to Colorado.
3 4

9. _____ The soldiers stood at attention, held their guns at their
1
sides, and kept from smiling; while General Firster, not
2 3 4
knowing his shoes were untied, tripped as he walked along
to review the troops.

10. _____ The woman that wore a blue dress, was Mrs. Kaplan; I know
1 2
because I saw her several years earlier, while I was on a
3
tour of the West Coast.
4

GO ON TO THE NEXT PAGE

PART II

This next set of exercises contains groups of sentences, with certain parts underlined, and numbered. To the right of each of these numbered sections are several ways of writing the underlined portion. You are to decide which of these choices is most correct, and CHECK it in the appropriate box.

A.

Anne was thrilled to be a member
of the bridle party.
1

1) 1. ☐ bridle
2. ☐ bridal

But she didn't know what to wear?
2
After all, how

2) 1. ☐ wear?
2. ☐ wear!
3. ☐ wear.

could she accept the invitation
3

3) 1. ☐ accept
2. ☐ except

when all she owned was sports
clothes. Putting her mind to the
problem; she finally decided
4

4) 1. ☐ problem; she
2. ☐ problem. She
3. ☐ problem, she
4. ☐ problem she

to borrow the money for a new
dress. She approached her father,
who hemmed, and hawed and, finally
5

5) 1. ☐ hawed and, finally
2. ☐ hawed, and finally
3. ☐ hawed; and finally

agreed to lend her twenty dollars.
With the money in hand, she went
to Lane's department store
6

6) 1. ☐ Lane's department store
2. ☐ Lane' Department Store
3. ☐ Lane's department store,
4. ☐ Lane's Department Store,

where she bought a lovely red sheath.
When the wedding finally came, everyone
complemented her on her pretty new dress.
7

7) 1. ☐ complemented
2. ☐ complimented

PART II

B.

In 1901, he emigrated to america.
8

8) 1. ☐ emigrated to america.
2. ☐ emigrated to America.
3. ☐ immigrated to america.
4. ☐ immigrated to America.

After a long hard voyage
9

9) 1. ☐ long hard voyage
2. ☐ long, hard, voyage,
3. ☐ long hard voyage,
4. ☐ long, hard voyage,

he arrived in New York. Nobody waved to him from the
10

10) 1. ☐ waved
2. ☐ waived

pier as he got off the ship. But he had few allusions.
11

11) 1. ☐ allusions
2. ☐ illusions

He knew what it took to succeed in a new country, hard work.
12

12) 1. ☐ country, hard
2. ☐ country; hard
3. ☐ country - hard
4. ☐ country: hard

He buckled down, went to law school, and
13

13) 1. ☐ law school; and
2. ☐ law school, and

was soon serving as a legal council
14
for several large corporations.

14) 1. ☐ council
2. ☐ counsel

When you have completed all of the questions in these exercises, ASK your instructor for a copy of the answer key, so you can CHECK your answers.

Time completed ______________

LEVEL III

UNIT 6

UNIT TEST

Time started ________________

PART A

These questions will consist of a paragraph, presented in four parts. A word or phrase is underlined in each part. Here is an example:

1. c a. We stopped working for a moment because they brought us some coffee.

b. Although we had much to do in the next 15 minutes,

c. we stopped to sip the warm brown drink. Consequently,

d. we finished all the work sooner than expected, but we didn't enjoy it.

e. None incorrectly used.

Follow these steps to do the exercises:

1. READ the first part of the paragraph.
2. READ each completing part of the paragraph and notice how the underlined word is used.
3. IF the underlined word is used incorrectly, place the letter of that completing part in the blank next to the number at the beginning of the paragraph.
4. IF all the words are used correctly, place the letter d in the blank next to the number of the paragraph.

For example, in the above test question, all underlined words are correct except consequently. Therefore, the letter c is written in the blank. Consequently is incorrect because it doesn't make sense to say "We stopped to sip the warm brown drink, consequently (as a result) we finished all the work sooner than expected."

1. _____ a. Liz knew that she needed to paint the house, consequently,

b. she bought some paint and waited for sunny whether.

c. As a matter of principle, she wanted to do the painting herself.

d. Moreover, she wouldn't let anyone help her.

e. None incorrectly used.

2. _____ a. They were in a hurry, and were waiting beside the train station.

b. It was still credible that they could have missed the train; they didn't know whether or not it had come.

c. They were going to see the awesome Grand Canyon;

d. The weather was just perfect for a vacation.

e. None incorrectly used.

3. _____ a. It was a very good year; for instance, the corn grew to eight feet.

b. Besides the corn begging to be picked, tomatoes and eggplants were hanging ripe in the garden.

c. However, we weren't credulous enough to believe it would last forever;

d. we could tell winter was on its way because of the awful orange-gold splendor of the Hickory tree on the lawn.

e. None incorrectly used.

4. _____ a. As Bill goes to the store, he walks past the school.

b. The car coughed, sputtered, and stopped by the side of the road.

c. He bought the farm and chose agriculture as his career.

d. Running up the street, the store opened its doors to the crowd.

e. None incorrectly used.

5. _____ a. If I knew what I wanted, I would find it.

b. In his later years, many hobbies were started by him.

c. By watching the way the carpenter built the porch, Art learned about framing.

d. They needed nothing, yet lacked everything.

e. None incorrectly used.

6. _____ a. We all knew each other, since we got along well.

b. For instance, this car was owned by a little old lady.

c. He watched the girls swimming, and also saw a sailboat.

d. Besides chocolates, I like persimmons and almonds.

e. None incorrectly used.

7. _____ a. As I laughed and chuckled, growing happier and happier.

b. John opened the door, sat in the car, and turned the key.

c. Patricia, warming up to her subject, began to talk more and more.

d. Last summer, we had a good time in the mountains.

e. None incorrectly used.

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PART B

Decide which of the four choices most properly completes the sentence given. If none of the versions may be satisfactorily used, select e as your answer.

1. _____ Surely, George could accept criticism:

   a. more easily from the school principal than from his friends excepting Jim.

   b. from the school principal more easily than from any of his friends accept Jim.

   c. and also from his friend Jim as easily as he could from the school principle.

   d. from the school principal more easily than from any of his friends except Jim.

   e. none satisfactory

2. _____ Although it wasn't new when he bought it:

   a. the car ran well in every kind of weather but the winter. During that season Mac kept it in a garage therefore.

   b. the car ran well in every season except winter. Therefore, Mac kept it in a garage during the winter.

   c. the car didn't run well but in the winter. It was in however that season, that Mac kept it in a garage.

   d. Mac kept the car in a garage in the winter; however, it ran well in every other kind of weather.

   e. none satisfactory

3. _____ He was transferred to another camp:

a. because he got into too much trouble at the first camp. Yet he needed more training. And so they sent him to a new camp in Arizona that was smaller and nearer to his home.

b. even though he got into too much trouble at the first camp where he was at yet he needed more training. They chose the camp in Arizona since it was near his home and also smaller.

c. and also he needed more training yet he had gotten into too much trouble at the first camp. He was sent to the camp in Arizona, they chose it therefore it was near his home and smaller.

d. in Arizona that was smaller and nearer to his home because he got into too much trouble at the first camp. Since he needed more training.

e. none satisfactory

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PART C

This is your last exercise; it's a long one because it covers all the English Usage lessons. The questions in this part of the exercise are in a different form from Parts A and B. As in the first part, the sentences are presented in paragraphs. But here, instead of deciding whether or not there is a mistake among four underlined parts of a sentence, you must LOOK AT EACH UNDERLINED PART. To the right of the paragraph, four choices are given for each underlined word or phrase. For example:

They soon found that they did like the old woman after all. Even though she was far too talkative; and continually	1.	a) b) c) d)	talkative; and talkative, and talkative. And talkative--and

These are the steps you should follow to do the exercises.

1. READ until you come to an underlined word.
2. CONTINUE READING until you come to the end of the sentence that contains the underlined word.
3. LOOK at the word or phrase that is underlined and at the four choices in the right hand column.
4. CIRCLE the letter of the word or phrase in the right hand column that is correct. (The first choice is ALWAYS THE SAME AS THE UNDERLINED PART of the sentence.)
5. IF you have difficulty in choosing an answer, it may mean that you should read the following sentence or two, so that you will get an overall picture of what is being expressed.

Below is an example of this exercise:

They soon found that they did like the old woman after all. Even though she was far too talkative; and continually 1	1.	a) [✓ b)] c) d)	talkative; and talkative, and talkative. And talkative--and
interrupted other people, her comments were witty and accurate, 2			
she often spoke of her many lives -- her days of youth, her autumn years.	2.	a) b) [✓ c)] d)	accurate, she accurate; she accurate. She accurate: she

For question 1, (b) was circled because only a comma was necessary. For question 2, (c) was circled because without the period, the sentence is too long. It becomes verbose and the meaning of the sentence is lost.

I - Essay

In the early pre-industrial stage of our civilization, a widespread practice to guard and shelter women.
1

1. a) a widespread practice to guard and shelter women.

   b) a widespread practice, to guard and shelter women.

   c) it was a widespread practice to guard and shelter women.

Women in that era had few privileges, as a result of not being able to escape from
2

2. a) as a result of not being

   b) and, as a result, were not

   c) consequently not being

unhappy marriages. Temptations to leave one husband in favor of another were infrequent, for the duties of a wife were so standardized that there was less difference than
3

3. a) than

   b) from

one home to another than is found in modern urban culture.

For more than a century, women of modern civilization have been engaged at a concerted and highly successful
4

4. a) at

   b) by

   c) in

   d) for

drive to gain emancipation (freedom) from traditional restrictions and to gain equal opportunities with men.

II - Story

The two young women have the appearance of being buried in a bed of flowers? They
5
are alone

5. a) flowers? They
   b) flowers, they
   c) flowers. They
   d) flowers; they

in an immense landau filled with bouquets like a giant basket. Upon the seat before them, two
6

6. a) them, two
   b) them, are two
   c) them. Two
   d) them; two

small hampers full of Nice violets. Upon the bear-skin, which covered their knees, is a heap of
7

7. a) skin, which covered their knees,
   b) skin;which covered, their knees
   c) skin which covered their knees

roses. The women stay snug in the coach, while the coachman sits outside in the freezing cold. The coachman's whip is thin and ornate.
8

8. a) coachman's whip
   b) coachmans' whip
   c) coachmans whip

Besides the coachman is an enormous dog,
9
sitting

9. a) besides
   b) beside

straight and alert, its eyes on the road.
10

10. a) its
    b) it's
    c) its'

III - Essay

Weather or not I enjoy my work as a chicken
11

11. a) weather
b) whether

inspector is a difficult matter to assess. After all, like any job, it have it's
12
advantages and

12. a) have
b) has

disadvantages. Let me begin with the advantages. First of all, liking chickens.
13
Second, I like

13. a) liking chickens.
b) having been liked chickens
c) having liking chickens
d) I like chickens.

driving around from farm to farm. I don't have to spend five days a week tied to a desk and a chair. I like the feeling of
14
freedom derived

14. a) chair. I
b) chair I
c) chair, I
d) chair--I

from visiting many farms and talking with farmers.

Of course there are disadvantages to being
15

15. a) course there
b) course, there
c) course; there
d) course. there

a chicken inspector. I find chicken coops dirty and unattractive. Consequently,
16
chickens

16. a) Consequently
b) Because
c) On the other hand

are interesting birds. One of the most interesting traits of this species is its barnyard pecking order.

IV - Story

Harold and I never seemed to agree on anything. I can remember the day he rushed in the room and exclaimed, "I just met the
17
most interesting person in the world."
18

17. a) in
    b) into

18. a) world."
    b) world?"
    c) world!"

"Who?" I asked, with great wonder. "Who
19

19. a) wonder. "Who
    b) wonder, "who
    c) wonder. Who

on earth is the most interesting?"

"His name" Harold said slowly,
20

20. a) name" Harold
    b) name," Harold
    c) name;" Harold
    d) name. Harold

drawing out his story, "is Oswald Collen." He is the fastest deep-sea diver in the world. What's more, he has gone under in the Atlantic, the Pacific, the Mediterranean Sea and the Bay of Biscay."

I sucked in my breath and thought a moment. Should I just listen to Harold, or tell him that the idea of a fast deep-sea diver just plain didn't make sense?

I decided to find out what this Collen had done earning such an outlandish title.
21

21. a) done earning
    b) done and earn
    c) done to earn

IV - Story (continued)

"Harold, I have only one question," I said. What awful thing has this Collen done that
22

22. a) awful

b) awesome

you should be so overwhelmed?"

When you have completed all of the questions in these exercises, ASK your instructor for a copy of the answer key, so you can CHECK your answers.

Time completed ______________

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